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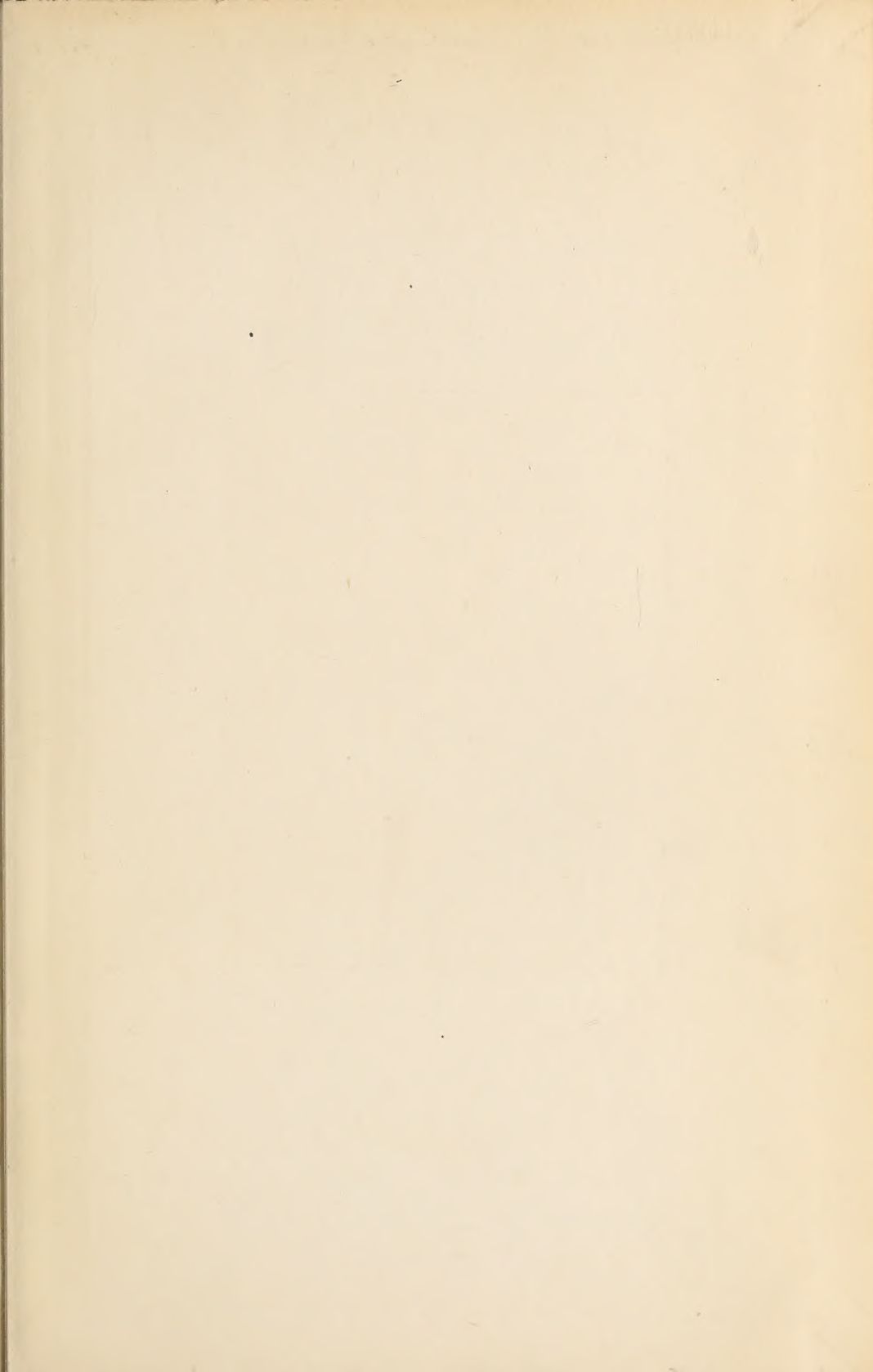
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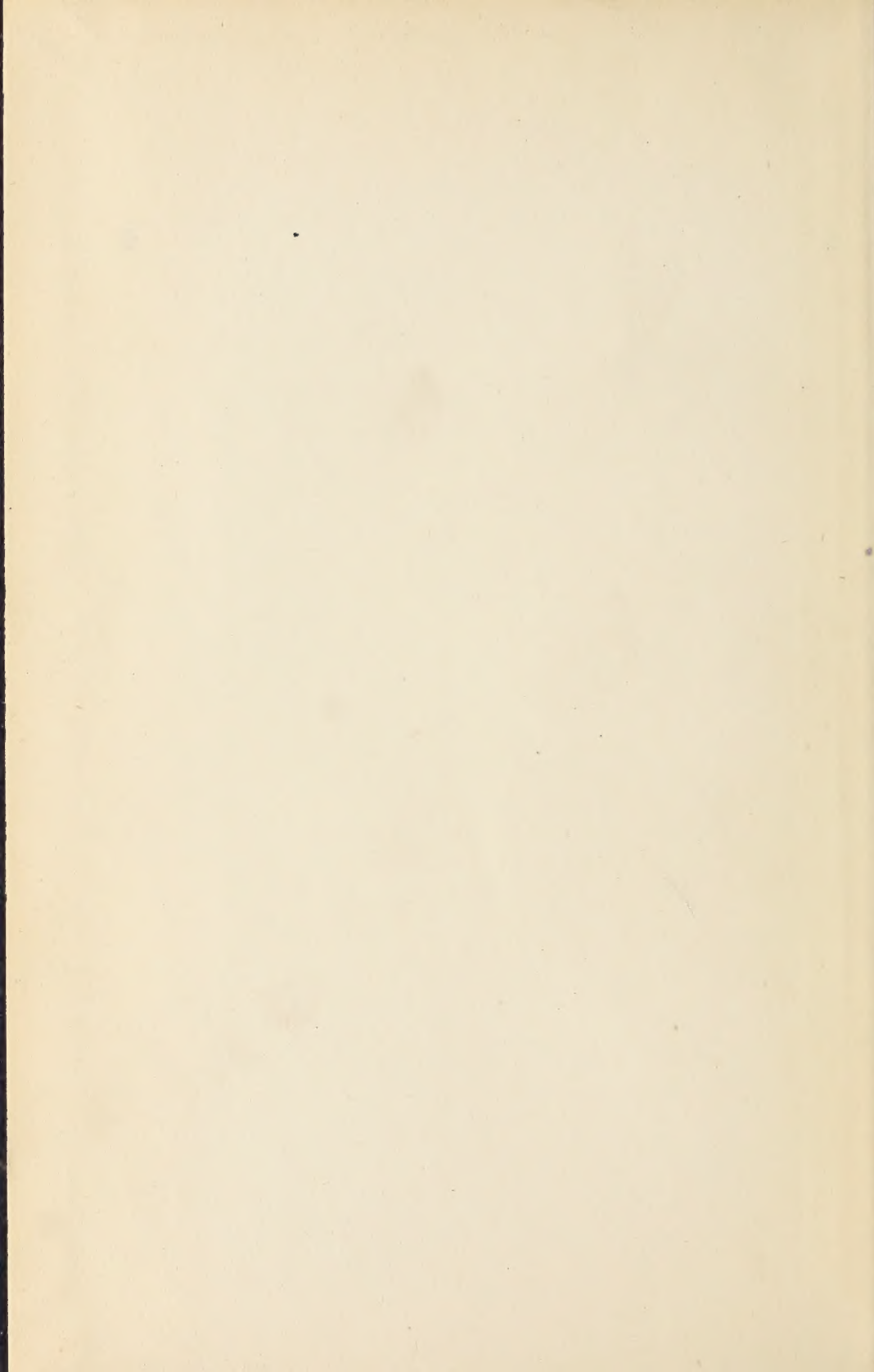
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THE

Dental Summary

EDITED BY
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COLUMBUS, OHIO

VOL. XXV.

PUBLISHED MONTHLY BY
THE RANSOM & RANDOLPH CO.
TOLEDO, OHIO

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RETAINING APPLIANCES.

BY H. S. VAUGHN, D. D. S., KANSAS CITY, MISSOURI.

Member of the Missouri State Board of Dental Examiners.

Perhaps the greatest bugaboo of the dental profession is the retention of orthodontic corrections. This would not be the case if there were not so much difference in the conditions of such cases, as is so often found, which makes a universal rule for retention impracticable. There are but few who have the opportunity of seeing cases corrected in their attendance at college and if they do have this opportunity, it is possibly one case, and that a very simple one. So, to most operators, the knowledge they get along the line of orthodontia, comes after they have left college. Therefore, it behooves those of the profession who have learned some few points about this work—or other lines of work, either—that they be willing to impart their knowledge to those who seek such, that we all may be the better qualified to attend such cases as may come to hand.

To you who know all about this subject—and more, perhaps—I have nothing to say, but to those like myself, who need instruction on account of the obstacles we have encountered along this line of work, I offer these few suggestions.

Most men have the idea they have completed a correction when they have put the teeth in proper position. Here they stop, and here they fail. Almost any blacksmith can do this much. I say, you have only begun, for by far the most difficult part of the operation is keeping the teeth where you have put them, when corrected.

I give as much, or more, care to this part of the operation as to any other.

Many patients, and even sometimes dentists, will say, "Oh,

you can perhaps straighten the teeth, but you can't keep them there. They will return to their former positions." They very likely will for such a dentist as this, but not for all.

Now if you can't do this sort of work, and make it permanent, quit it, and don't discourage its being done, but be honest about it, say you can't do it, but know some one who can, and send the case to your neighbor. The patient will respect you the more for your honesty.

There may not be one thing herein you have not already seen in print, or heard talked at some association, yet a review of things we have already known sometimes does us good.

The principal feature in a retaining appliance must be *firmness*. No slipping or springing appliance will ever enable the teeth to become fastened. In fact, they but cause the teeth the longer to remain loose, thereby lengthening the time necessary for the retaining appliance to be worn.

The sooner a tooth can be moved into place—within reason—and securely retained, the sooner it will become fast in its socket.

The reason for this is simple, as you will see. Suppose, for example, you push a central incisor from within the arch, into position, and place a firm retaining appliance on. it will tighten quickly. But place on an appliance which moves up and down, sometimes pushing the tooth out, and again in, it will cause the alveolar process to be absorbed on both sides, removing the support on the outside of the tooth, that it should have had, which leaves the tooth resting only on the end of its root in the socket. This compels you to make a much firmer retaining appliance, and necessitates the patient's wearing it about twice as long again, or the tooth will easily return to its former position.

In ordinary cases, where the teeth have been moved slowly, the osteoblast will rebuild the alveola behind the moving tooth, almost as rapidly as it is resorbed before.

Now, would you like to know how to make this permanent retention? Well, it is not an easy task, I can assure you, and since each case differs so widely from every other, it will be impossible for me to attempt to describe them all, or lay down any ironclad rules for such, though I will make an attempt at two or three cases of the most ordinary kind.

This little bit of advice first: Don't be afraid of marring your patient's looks for the time being, if you can benefit them for eternity.

I have an idea that the reason why many of the profession charge so little for this sort of work is, they are in doubt whether they will benefit their patients—which is likely they won't.

If you can retain the teeth where you have put them by covering every tooth with an unsightly substance, I say, *do it*, no matter what comments are made by patient or friends, if by so doing you can make them stay, for if you fail to complete your correction, you will be criticized but the more. Whenever I can save my patient's looks by concealing the appliance, I do it, provided it does not interfere with the accomplishment of my purposes.

Generally speaking, the six anterior teeth are the most diffi-



FIG. 1.

Fig. 1 represents anterior teeth, swaged German silver appliance with labial extension, and appliance in place on the teeth.

cult to hold in place after correction, and are by all means the most important to have look well.

For the retention of these I usually take impression, make a die of the six anterior teeth, swage over the back of these a piece of very thin German silver strip, which I reinforce with soft solder to prevent its giving. The portion extending over the labial surface is trimmed until only a very small portion extends over the cutting edge so as to hold.

Should the bite be very close, the appliance could not extend on the lingual side, but would have to be made for the labial surface, and extend very slightly over cutting edge lingually.

After the appliance, thus made, is gold-plated, place it on the teeth with cement, and hold it firmly until it has thoroughly set, then remove all excess of cement. (See Fig. 1.)

Whether these teeth have been moved outward or inward makes little difference. They can usually be held in position by this means.

Should the correction be only a single tooth, the appliance could of course be made much simpler, more like the device recommended by Dr. J. K. Douglas in the November SUMMARY, 1903, for holding replanted teeth in position, as shown in Fig. 2.



FIG. 2.

I would prefer, however, to have a piece of German silver backing in the place of the wire he suggests, and solder it to the bands, as shown in Fig. 3.

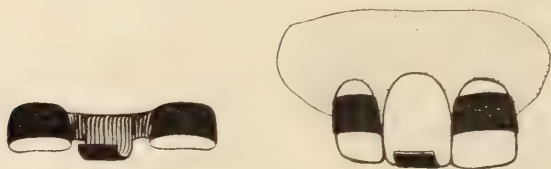


FIG. 3.

A very simple way of holding one tooth in place, is by banding the straightened tooth, soldering to the band on the labial side a German silver wire which has been bent to fit the surfaces of the teeth on either side. (Fig. 4.)



FIG. 4.

Cement the band on when completed. This can be easily worn, as well as kept clean. Leave this on until the tooth is thoroughly tight.

I am not much in favor of banding teeth for retention though,

for the separation made by the bands between the teeth, often remains after their removal.

The so-called retaining appliance is not always practical, for in very many cases the appliance which was used to correct the irregularity is by far the most useful and practical retainer, provided it can be kept clean. In a case of expansion of the arch, where the "Jackson Crib" is used (Fig. 5), nothing, to my mind, could be more efficient for such a case as this, as is the appliance used for the correction.

In some cases a rubber plate, covering the roof of the mouth, is very good where there has been an expansion of the arch, or front teeth pushed outward. Some people cannot stand rubber in the mouth, while on the other hand, some other form of appliance may be equally as objectionable. Therefore great care must be exerted in the selection of a retaining substance.



FIG. 5.

Lay down no universal rules for the retention of teeth, else you make a sad mistake, for often the form of appliance that appeals to you from a mechanical standpoint will be an utter failure from a practical point of view.

Strive on until you devise some plan which will retain the teeth in the place you would have them, and not resting until you have accomplished your undertaking.

Many times you will find the simplest device will do best that which you have so worried over to accomplish.

Make your appliance firm.

Securely fasten it.

Make it as simple as possible, that it may be easily cleaned.

Leave it on too long, rather than too short a time.

Don't stop until you have accomplished all this, and you will surely make a success of your correction.

CLEFT PALATE AND OBTURATORS.

BY C. A. BLAND, D. D. S., CHARLOTTE, NORTH CAROLINA.

Member of the North Carolina State Board of Dental Examiners

There is nothing in prosthetic dentistry that gives the dental surgeon more difficulty than the construction of obturators. The deformity of cleft palate is either congenital or acquired. The acquired is the result of accident or disease. Its distinguishing characteristics are that it never occurs in the median line unless caused by gunshot wound or similar mishap; the edges are always



FIG. 1—Showing double harelip.

rough and irregular. The congenital is caused by an arrest of development. The text-books say, "It is the result of a lack of development of the superior maxillary bones arising from various causes, among others being hereditary disease, malformation during embryonal life, a lack of nourishment of the bones involved, the trophic nerve supply being impaired." Now this prenatal influence can be psychic; due to ideas received by the mother, especially if she be of impressionable nature, clinging to an idea with abnormal tenacity, seeing deformities in others and the great

fear of such conditions being present in her child. This fixity of mind interferes with the proper development. That such cases do exist there is no doubt, despite the fact that the theory is held in ridicule by many. The influence of the mind over the body is recognized by scientific men. The cult of Christian Science, with all of its absurdities, has this element of truth. Hypnotists effect cures of some diseases by mental impressions, evil habits are corrected and even surgical operations are performed when the patient is in an hypnotic sleep. If mental suggestions so



FIG. 2—Showing cleft palate.

effect physical conditions, is it unreasonable to think, when the mother is in that morbid state prior to childbirth that the development of the child is influenced by some fixed idea? You have seen people make themselves sick by imagination producing the symptoms of disease with no existing cause save mental suggestion. The impressions of external objects on the brain has been shown by an old trick. A picture of a brightly colored dragon is handed to a person, with instructions to gaze intently at it for a certain number of minutes, then look up at the ceiling and the dragon will be seen there. Thus the brain continues to stimulate

the optic nerve after the true cause has been removed. The congenital deformity is at times combined with harelip; usually, however, it is confined to the hard palate and uvula. It always occurs in the median line and the edges are smooth and rounded. Sufferers from the deformity find great difficulty in speaking, the voice loses all of the natural tones, and sometimes speech is so bad that it is unintelligible. When the defect is acquired, perfect speech can be restored immediately after a properly constructed obturator is placed in the mouth, the patient having learned to talk prior to the lesion. In these cases the cause is



FIG. 3—Showing lip after operation.

generally syphilis and the perforation is frequently in the hard palate only, consequently all that is necessary is to cover the opening with court-plaster and take an impression just as you would to construct an artificial denture. The obturator under no circumstances should extend into the opening, as it would prove to be a source of irritation and in no way a benefit. Congenital cleft presents the greatest difficulties after every care has been taken in constructing the obturator, when it is as perfect as it can be made. The first results are sure to be disappointing. Improve-

ment in the voice does not take place at once; in fact it requires constant and laborious effort on the part of the patient to learn to speak properly, owing to the fact that the wrong muscles have been developed and incorrect methods of speech learned. However, by practice all these obstacles can be surmounted. Until recently surgical interference in cases of congenital cleft, unless confined to the uvular, proved unsatisfactory, there being insufficient tissue to close the cleft without drawing the uvula away from the posterior pharyngeal walls, giving the voice that distressing nasal sound. Doctor Brophy, of Chicago, has revolu-



FIG. 4—Showing obturator closing cleft.

tionized the surgical procedure by his method. When the operation is performed early in life success is assured and perfect speech is easily learned. But when we dentists in smaller places are called on to deal with a case, it is usually past the time of life when an operation is practicable. We are consequently forced to meet the exigencies of the case by making an obturator. The method for taking impressions and constructing such appliances is given in all the best works on prosthetic dentistry.

The case I wish to especially call to the attention of the

readers of THE DENTAL SUMMARY is that of a young woman about 27 years old. There was cleft of both hard and soft palate, combined with double harelip. The extent of the deformity is shown in the engravings. Of course her speech was so bad that it was next to impossible to understand her. The first step was to have a surgeon operate on the lip, which was done with perfect success, the wounds healing by first intention. The obturator was made, and although the patient wore it with comfort, improvement in her speech was slow, but after several months was decided. It is always best, if possible, to have the patient take instructions under an elocutionist—one who has made a scientific study of the voice and is thoroughly familiar with the various muscles which produce speech. In patients of this class there is as much to unlearn as there is to learn, and it is only by the greatest care and persistent effort that they can be taught correct speech.





REGULAR CONTRIBUTIONS

THE FIELD FOR PORCELAIN INLAYS AND THE CAVITY PREPARATION THEREFOR.*

BY J. E. NYMAN, D. D. S., CHICAGO, ILLINOIS.

Everyone who has the opportunity of appearing before a gathering of his profession feels the desire to present for their consideration something of such interest as to command their close attention, cause much discussion, call forth many congratulations, and make his appearance a most memorable episode.

There is no gainsaying that that which is novel is always interesting. With many the desire to be interesting at any rate, has led them in a wild quest of the novel and they have gone to such lengths that they merit the scathing satire and the merciless ridicule that Balzac has heaped upon those concerned in his "Quest of the Absolute;" that is to say, the quest of the impossible.

And if, in their quest of the novel, they find nothing new in the realm of fact and logic, then they draw upon the realm of fancy and sophistry. Witness the many practices that have been preached that were not practical, but at the time were novel. Witness the many methods that have been advocated and demonstrated on paper, that never were nor could be accurately carried out save on paper or in the imagination, but were presented because they were novel. Witness the theories that have been advanced that have found no foundation in fact and in some cases did not have the support of the faith of him who advanced them, but did so because they were novel, sensational.

If you cannot recall them, you have but to turn over the pages of the past of the literature of our profession to find arti-

*Read before the Indiana State Dental Society, June, 1904.

cles by the score, of practices preached, of methods advocated, of theories advanced, whose only excuse for existence was their novelty, which were delusions and snares that lead to many failures and much misery, that the test of time exploded and that bring sardonic smiles to your face as you ponder over them.

There are those whose interest is entirely centered on the impossible, who give no attention to the possible, the probable or the certain, the commonplace; they are the visionaries, and of these I am not.

There are those whose interest is centered on the possible, but who have never a thought for the probable or the certain, the commonplace, and of these I am not—they are the idealists

No one need remind me by way of admonishment that the impossible of the past may become the possible of the future; that the possible of yesterday may be the probable of to-day; that the probable of to-day will be the certain, the commonplace of to-morrow. Fully do I realize this and rejoice in it, for therein lies the glorious hope of the future. The dependable promise of those things of which we are now in need, but have not.

But it is the history of progress that the development of the probable into the certain makes possible the development of the possible into the probable and at length puts within our grasp the present impossible.

Seldom, very seldom, do those whose attention is centered on the impossible to the exclusion of all other degrees ever even so much as touch finger tips to it.

And every agent and agency must be developed until it has become the certain, the commonplace, ere can be given to humanity the fullest benefits of any agent or agency the universe holds for the welfare of man.

Because these things are true and because I preach what I believe—and practice; because I claim to be one of the class of liberals who take interest alike in the possible, probable and commonplace, and because I believe that the greatest good is derived from the practice of the probable and the certain—I presume to-day to present to you that which is probable and certain, even if it is not novel and sensational.

Our profession has known recurrent epochs of wide-spread adoption of some single theory or practice to the exclusion of others.

A panacea and a specific it was held until time disclosed its limitations and its deficiencies, as well as its scope and efficiency, and it received its just rank among the methods at our command.

Time was when cataphoresis was a title of two-thirds of the papers published and clinics given. "Electro-therapeutics" was "the only way."

Long and serious discussions went on as to whether the process was electro-physical or electro-chemical and now the profession does not care a rap which it is.

Every up-to-date practitioner spent his money for an outfit and it occupied a conspicuous place in his office, and now it either reposes beneath the dust in some remote obscure spot or hath been traded in for something else of more utility.

Much was the money wasted, many were the pains inflicted and little was the good accomplished.

So, too, even yet.

For over a year past the journals have teemed with articles on inlays, and as often as one scanned the clinical programs did porcelain inlays, porcelain restorations, ceramic contours, etc., meet his eye. Symposium after symposium; long and weighty discussions were waged over the relative merits and demerits of low and high-fusing porcelains; of gold and of platinum matrices. The profession was swept with another tidal wave of enthusiasm of a new epoch-making method that was destined, according to its devotees, to supplant all other methods of filling teeth.

But, alas, tidal waves cause disasters and this one was no exception.

The wave-crest has passed, and as it ebbed, left many wrecks for our sorrowful inspection.

And the same level-headed practitioners have been learning some very valuable lessons from them.

The discussion has shifted from the comparatively unimportant points of high or low-fusing body and gold or platinum matrices to the more important, the fundamental problems,

THE FIELD OF THE PORCELAIN INLAY AND CAVITY PREPARATION THEREFOR.

There can be no doubt that porcelain inlays are and will be a factor in the practice of dentistry; but at the same time their

scope is limited as is that of the other methods, and it has come to fill its proper place in company with them and not to displace them.

Much harm has been done by the radical principles promulgated by the optimistic enthusiasts to whom I accord, however, full appreciation of their value as an impulse to the advancement of knowledge.

Glibly they proclaim that teeth can be better and longer preserved by porcelain fillings than by fillings of any other materials.

That "their use solves at once and for all time the much-mooted question of extension for prevention; because they are so compatible."

That "they may be used anywhere that cavities exist."

That "their scope is limited only by the ability of the operator."

That "if you believe in inlays at all you must believe in them everywhere."

That "pluggers are things of the past, no longer useful instruments, but one with the relics of by-gone practices."

That "the insertion of inlays involves less loss of tooth structure than that of metallic fillings."

These dogmas have been preached with such insistence and assurance that many have come to believe that, forsooth, they must be true.

But time, that dispassionate, impartial, inflexible, infallible tester of things, has weighed these statements and found them wanting; has found that all was not fact; that some were absolutely fallacious. In fact, it may be fairly stated that not one of the above "Articles of Faith," is wholly true.

Especially is this so of the statement that "their scope is limited only by the ability of the operator"—the ability of the operator is a limiting factor in all methods and therefore need not be considered in the discussion of a special method. "Their scope is limited" and by factors which are beyond the control of the operator.

All scientific investigation of the method considers both the arguments for and against it.

For the porcelain inlay may be argued:

Artistic effect.

Non-conductivity of thermal change.

Reduction of suffering and fatigue to patient and

The reduction of stress and fatigue to the operator by eliminating the condensing and finishing of fillings.

The conservation of sound tooth structure in some cases.

Against it may be said:

It is brittle and lacking in that essential quality, "edge strength."

Its insertion in some cases involves extensive loss of sound tooth structure.

It is very difficult of removal should trouble ensue.

It is set in a media upon which fluids of the mouth have a disintegrating action.

We have frequently heard at dental gatherings the question asked of some noted inlay advocate: "Doctor, do you ever put in any gold or amalgam fillings now?" And the noted one shrugs his shoulders and says: "Oh, yes, sometimes." "Where, Doctor?" And the noted one replies: "Where an inlay is not indicated," and that ends it.

There is a crucial point of this whole subject. Where are porcelain inlays indicated and where are they not? Is there any sharp definable line that marks the limits of their field? Yes, "exposure of the margins to the stress of mastication."

WHERE PORCELAIN INLAYS SHOULD BE USED.

Except in the anterior teeth where, on account of the conspicuous situation, artistic effect is as great a consideration as any other, porcelain inlays should never be placed where the margins are exposed to the stress of mastication. The observation of skillful practitioners of sound judgment, who have watched these things, demonstrates that the slight washing out of the cement at the margins, which is incident to all inlays set with cement, leaves the brittle margin of the inlay unsupported so that it chips off under the direct stress of mastication, leaving the cement still more exposed, with the result that more of it washes out, leaving more unsupported, brittle porcelain margin which further chips off and so the process of destruction and disintegration continues to its usual end.

Furthermore, the element of time must be considered in certain cases.

In the occlusal class of cavities and the buccal fissure cavities, gold fillings may be inserted in about the time it would take to fit a matrix, and in cavities of the "pit" variety where an inlay simply could not be inserted.

Frequently, in compound proximo-occlusal cavities in bicuspid and molars, the mere cutting away of frail walls and of carious dentine and enamel gives the cavity a general retentive shape, requiring but very little cutting in certain places to complete the cavity preparation for the insertion of gold, while cavity preparation for an inlay would mean either extensive cutting away of sound tooth structure or a very extensive wedging, both uncalled for and unjustifiable.

And a gold filling properly inserted as regards cavity preparation, protection of pulp against thermal shock, adaptation, condensation and finish, is as good a preserver of the tooth surface in which it has been placed as is the finest inlay that could be inserted.

If the pulp has been protected against thermal shock, gold is as "compatible" (in the accepted meaning of that term) as is porcelain. If one persists in asserting to the contrary, then one must also assert and demonstrate that there is some chemical action of or from the gold itself on tooth structure that has an inimical effect. And no one as yet has been so daring or so foolish as to make such a statement.

The writer has seen too many gold fillings that throughout years have been and are still protecting and preserving the surfaces of the teeth in which they were placed. although the mouths have continually been in a susceptible condition, to believe that recurrent caries is ever due to anything inherent in the gold itself.

Cavities whose inaccessibility precludes the adaptation of the matrix, and whose location does not demand extension, are also regarded as outside the field of the porcelain inlay.

Pulpless teeth with cavities involving the greater portion of the coronal surface should be crowned.

But even these limitations leave a very large field for the wise application of the porcelain inlay.

The proximal, proximo-incisal and labial cavities of the incisors.

The extensive labial, buccal and lingual cavities of all teeth.

The extensive complex cavities in molars and bicusps when conspicuous.

The incisal third of vital teeth especially in the young.

A field which should be large enough to satisfy the most ardent advocate of porcelain inlays, and the sooner they all admit its "metes and bounds" and confine them to it, the better it will be for both the public and the profession.

Extravagant claims often result in great discredit, and of this porcelain inlays stand in danger now.

Modern science demands that we endeavor not to disfigure when we repair.

The esthetic effect in conspicuous places has grown to be practically paramount to the factor of permanence.

So we feel justified in advocating porcelain inlays.

"But," queries some one, "how can you claim them permanent fillings when the real fillings—so to speak—is a film of cement which we know by experience is not in the mouth a permanent material; disintegration is bound to occur and a crevice formed which will be a nucleus for recurrent caries?" And so logically and theoretically it would seem. But right here we have a striking example of how theory and reality may differ. The disintegration does occur and the crevice does form to a certain depth equal about to the width of the crevice, but unless exposed to the stress of mastication there is no further disintegration, the crevice does not increase in depth and strange to say that although a crevice does form, that, however slight it may be to the eye, must be a most spacious boulevard to a microbe, "recurrent caries" is not manifested. Why? There is no satisfactory explanation.

There are many instances where porcelain inlays have preserved the surfaces in which they were inserted years before, although the mouth has been susceptible and caries has occurred in various parts of the teeth. In the joint between inlay and tooth no cement may be visible to the eye, but it may be seen by examining it with a magnifying glass. Furthermore, we have many instances of crown and bridge-work in which the facings or plate-teeth have been cemented to, or in, the metallic backing and the cement has stood for years without disintegration beyond the

slight amount which occurred shortly after the tooth was set.

The result is analogous to that familiar one of the combination of brick and mortar; the brick the permanent, the mortar the temporary filling.

Experience teaches us that properly-placed, constructed and set porcelain inlays may be considered permanent.

And yet the recent experiments of Doctor Poundstone, of Chicago, yield results which theoretically cause us much uneasiness.

He found that some cements, like amalgams, undergo a continuous physical change for a period of time after they were supposed to be set and permanent.

He found that some cements, when squeezed to a thin film under pressure, never properly set; were porous and had little or no cohesion or adhesion. And finally he found that the thinnest film to which he could squeeze cement under a pressure of 25 pounds maintained for a period of hours, was from 20 to 30 microns thick, averaging about 25.25 microns, which is equal practically to 1-1000 of an inch. So that conclusively disposes of the claim that the use of gold foil 1-1000 of an inch thick results in such a close fitting inlay that all of the cement is actually forced out at the margins or that the beveling of the cavity walls to an angle of 45° or more, results in an inlay which, by grinding a bit off the bottom, allows you to force it into the cavity until the margins of the inlay and the walls of the cavity are in actual contact, all the cement being forced out of the joint and no opportunity being given for the formation of a crevice. In making this last statement the writer is forced to retract a belief that he has previously held and argued.

It has been demonstrated that even if the maximum force be applied for a maximum period of time there will, nevertheless, be a cement film about 1-1000 of an inch thick.

Still, as affecting the permanency of the cement layer between inlay and tooth structure, the experiments were not absolutely conclusive, as they were not conducted amid modifying environments identical with those in the mouth and as such a thing seems practically impossible, the evidence of clinical experience must still be considered as very important, and such evidence warrants us in regarding as permanent porcelain inlays in their proper field.

The permanency of a porcelain inlay, as of any other inlay or filling, will depend almost entirely upon the continued integrity of the margins.

And as porcelain is lacking in "edge strength," the character of the marginal edges must be most carefully considered. Indeed, this may be regarded as the most important phase of cavity preparation.

But, consideration must also be given to retentive form, instead of depending solely upon the adhesive power of cement, if the inlay is to be exposed to any stress; and sufficient depth of cavity must be obtained for sufficient thickness of porcelain, to insure structural strength and to avoid structural defects in construction. for thin veneers of porcelain are very difficult to fuse without developing flaws.

In presenting the problem of cavity preparation, the writer will consider those cavities which we meet with from day to day, the ordinary, the usual cavities, and not describe or depict cavity preparation for unusual cavities which may not present themselves in our practice for years to come.

I shall have occasion many times to refer to and quote from two articles upon this subject, one, "Cavity Preparation for Inlays," published in the May, 1904, number of *The Dental Digest*, read before the National Dental Association at Asheville; the other, "An Estimate of the Value of Porcelain as a Filling Material," read at the April meeting of the Chicago Dental Society, which will appear shortly in *The Dental Review*, by my friend Dr. C. N. Thompson, of Chicago, whom I have known so long and favorably as a man of skill and of sound judgment, that I regard his articles as authoritative.

Many of the principles involved in these methods of cavity preparation, are similar to those which have been advocated by Dr. A. E. Peck, Minneapolis, Minn.

INLAY MARGINS.

Inlay margins should have as nearly a right-angle section as is possible to obtain with walls that are divergent, for strength, for structural perfection and for color effect. Furthermore, it simplifies the manipulation in the construction of the inlay, and reduces the danger of fracturing the margins in forcing the inlay to place in setting it.

In general, it may be stated the mechanical principles involved in this system of cavity preparation are those of inclined planes and reverse curves so combined as to give the retentive shape, it being necessary to move the inlay in two directions at the same time to remove it.

Frequently this results in exposed cavity margins which does not harmonize in contour with the general curves of the contours of the teeth. This would be objectionable if the line of demarcation between filling and tooth structure were plainly noticeable, but inasmuch as there is no apparent line of demarcation between a porcelain inlay and that of the tooth structure, the question of contour of cavity margin for esthetic effect is eliminated. Furthermore, if there be any adjacent tooth to which the inlay can be built in strong contact, this system of cavity preparation makes it impossible for an inlay to drop out of the

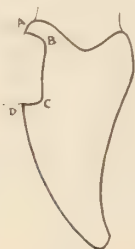


FIG. 1.



FIG. 2.

cavity even if it should loosen, a most important consideration; for many a splendid inlay has been thus lost, which could have been easily reset.

In cavities surfaces that are convex it is possible to obtain right-angle margins with walls that are divergent as may be shown in Figs. 1 and 2. It was found by geometrical projection that the labial line of the incisor in Fig. 1 was a segment of a circle. Lines A, B, and C, D are radii of that circle; they are therefore divergent and are at right-angles to that segment of a circle.

The same is true of the distal line of the incisor shown in Fig. 2 and on the lines A, B, and C, D, therein.

While in cavities involving surfaces that are markedly concave, as the occlusal surfaces of bicuspid and molars practically are, it is impossible to obtain walls that are divergent or

even parallel without resulting inlay edges that have an acute-angle section and therefore are very frail. (Figs. 3 and 4.)

An upper molar of the average type is shown in cross-section in Fig. 3, and at points A and B are shown the acute-angle sections referred to.

A typical upper bicuspid, also in cross-section, is shown in Fig 4, and at points A and B is again shown the acute-angle sections that are a result of divergent side lines in cavity preparation.

I long lamented the fact that I did not get uniform results in porcelain inlays.

I am impressed with the fact that the best results and the most uniform results are obtained by methods which insure accuracy and exemplified simplicity.

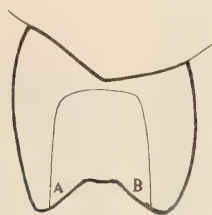


FIG. 3.

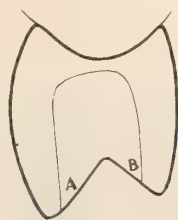


FIG. 4.

In all my work now my energies are bent, first, upon accuracy (mechanical and artistic); second, upon simplicity.

And I am convinced that the simpler a method is which yields accurate results, the more uniform will be the results; the greater the successes and the fewer the failures.

CLASSIFICATION OF CAVITIES

Cavities may be divided as follows:

Labial and buccal cavities in all teeth (common).

Lingual cavities in bicuspid and molars (very rare).

Simple proximal cavities in incisors (common).

Simple incisal cavities in incisors (very rare).

Compound cavities in incisors (common); *i. e.*, involving the incisal and proximal surfaces (common).

The entire incisal surface of the incisors (rare).

The entire occlusal surface of the bicuspid and molars (rare).

Complex cavities in all teeth (rare); *i. e.*, cavities involving two or more sides of a tooth and the entire incisal edge or occlusal surface.

LABIAL CAVITIES.

These should be prepared at least one millimeter deep, have a flat floor (or a convex one corresponding to the convexity of the surface of the tooth, if the cavity be extensive), walls slightly divergent, and as nearly right-angles to the surface of the tooth as is possible.

In Fig. 1 is shown in cross-section the general outline of



FIG. 5.



FIG. 6.

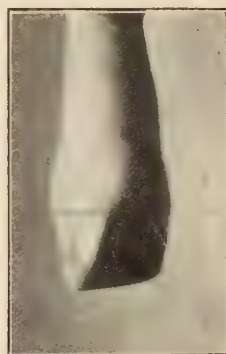


FIG. 7.

cavity preparation for these cases. Care should be taken that the juncture between the side walls and the floor of the cavity be rounded as is shown at points B and C. Should this be a square corner, the matrix would, in all probability tear badly at that point and afterward in setting, the surplus cement would be apt to pack into that corner and it would be impossible to set the inlay absolutely to place.

Should the prepared cavity be nearly symmetrical in shape, cut a small pit near one end of it; this will result in a small half-round projection on the under surface of the inlay, which avoids any mistakes in setting it and guides it to place. (See A, Fig 5.)

LINGUAL CAVITIES IN BICUSPIDS AND MOLARS.

Same preparation as for labial cavities.

SIMPLE PROXIMAL CAVITIES.

These should be cut away more lingually than labially so that the lingual surface of the inlay will be of greater area than the labial.

The displacing force in mastication being toward the labial surface, it will simply tend to maintain the inlay in place instead of to displace it. (Figs. 5, 6 and 7.)

The cavity should be prepared without undercuts, the gingival and the incisal walls cut at right-angles to the mesial curve of the incisor and these two walls rounding into the side wall without a sharp corner, Fig. 5 showing the labial and Fig. 6, the lingual aspect. while Fig. 7 the aspect from a mesial point of view.

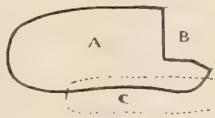


FIG 8.

Should the cavity be found to have extended mainly on the labial surface, a strong lingual wall remaining and the tooth be comparatively thick and of marked contour so that the margin will not be directly exposed to mastication as in cross-section (Fig. 8. A representing the upper incisor, B the cavity, C the lower incisor in its relative position in occlusion) then, of course, the operation is reversed, as force sufficient to dislodge the inlay cannot be brought to bear on it.

So, too, is the operation reversed in the lower incisors, as the dislodging force is exerted in the lingual direction, such cavities are rare.

SIMPLE INCISAL CAVITIES IN INCISORS.

These are rare and are usually the result of traumatism or of imperfect development. Their management under former methods of gold filling was always unsatisfactory. It was difficult

to get adequate retention without extending the cavity considerably and the result was very disfiguring. Here, if anywhere, the introduction of the porcelain inlay has been a blessing to both patient and dentist.

The mesial and distal walls are prepared as nearly as possible

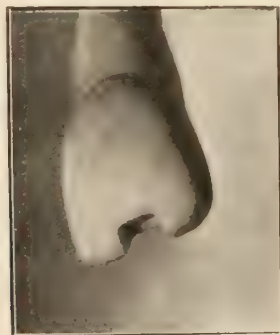


FIG. 9.

at right-angles to the incisal edge and yet be slightly divergent, at the same time beveling them toward the lingual side. (Fig. 9.)

The floor of the cavity is deepened in the center mesio-distally so that the floor slopes toward the center from the labial and lingual edges, that strong edges may be obtained

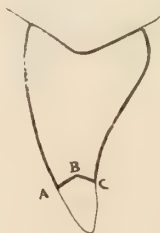


FIG. 10.

for inlay and also that retention against dislodging force from either labial or lingual directions. (Fig. 10, cross-sectional.)

COMPOUND CAVITIES IN THE INCISORS.

These are the ones that perplex us and, alas, are quite common.

The difficult problem is that of retention, for some retentive shape must be given the cavity, instead of relying solely on the adhesiveness of cement.

This lodging stress will be exerted not only in a labial direction, but also in a gingival direction, and we all know from experience with gold fillings in this class of cavities how severe the stress is.

The cutting of a step across the incisal edge, as is frequently practiced in preparation for gold filling, is not good practice in preparation for an inlay.

Corner cavities (usually due to accidents).

The cavity walls are approximately shaped by means of a thin abrasive wheel of about three-quarters of an inch in diameter

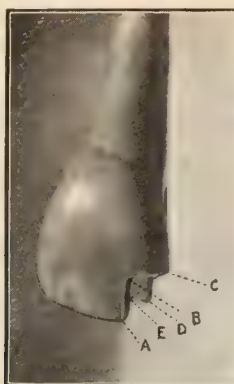


FIG. 11.

and one-sixteenth of an inch in thickness, cutting until walls supported by sound dentine are obtained—the gingival wall is slightly grooved for about three-fourths of its length, the groove not reaching the enamel wall at either side—then both the labial and lingual enamel walls are carefully cut away, leaving about a millimeter or so of dentine exposed as a ridge throughout the cavity. This ridge at the incisal end is slightly notched with a groove (Fig. 11) and serves as a means of retention against dislodging stress exerted labially, lingually or gingivally; this tapers from the gingival to the incisal edge. (Figs. 11 and 12.)

The axial wall, A-B, is beveled slightly toward the center longitudinal line of the tooth. This, if the inlay be built out to

strong proximal contact with adjacent tooth, is an added factor of retention. Of course, this necessitates some wedging of the teeth.

Should the cavity be somewhat shallow and should the gingival margin be well above the gum, so that the application of any separating device still leaves a millimeter or so of proximal



FIG. 12.

wall exposed between the gingival margin and the separating device, then the cavity may be prepared as follows: Trim with discs or wheels to sound margins, groove the gingival wall; then instead of grooving both labial and lingual walls, cut one broad triangular groove about one millimeter deep along the center of



FIG. 13.

the cavity (its greatest width at the gingival margin portion), being careful to leave both labial and lingual walls well supported by dentine. Fig. 13. (Fig. 13-A. A showing mesial sectional aspect of cavity, B showing inlay from labial aspect. Fig. 14 shows cross-section of inlay when set. The cement in the under-cuts being shown at C and C.)

The teeth must be separated at least equal to the depth of the groove; the inlay must be contoured so that there will be a strong contact when the teeth have settled back into place. After the inlay has been completed, the groove in the cavity should be very slightly undercut along the labial and lingual sides as

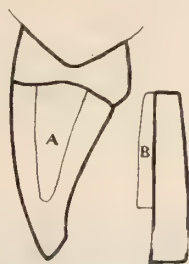


FIG. 13-A.

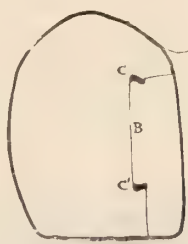


FIG. 14.

at the incisal end, and the ridge on the inlay undercut with a small diamond disc so as to give it a mortise shape.

Then there will be three factors for the retention of the inlay: The adhesiveness of the cement, the coherent strength of cement; the strong proximal pressure of the adjacent tooth.

If a proximo-incisal cavity presents itself of such depth that,



FIG. 15.

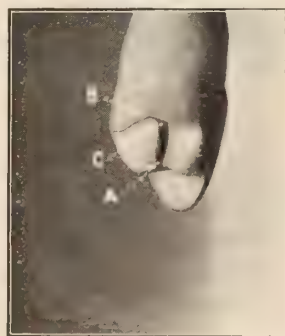


FIG. 16.

owing to the proximity of the pulp, it is inadvisable to cut into the dentine at any point, you may proceed as follows:

With discs cut down to sound walls; then cut a step about one millimeter wide from the incisal edge to the dentine, then cut away the lingual wall of enamel slightly more than the labial,

and cut a reverse curve in the seat of the step. (Fig. 15, the cavity from lingual aspect; the wall, C-D, is beveled slightly toward the center of the tooth, the reverse curves, B-C and D-E, are shown in Fig. 16. The beveling of the gingival floor and of the step is shown, likewise a slight groove, A-C, for additional retention.)

In all cases the tooth should be separated by packing the cavity tightly with cotton while the inlay is being fused, and the inlay should be built out to close contact at the proper proximate point; then, when set, the firm proximate pressure from the adjacent tooth will be an added factor for retention.

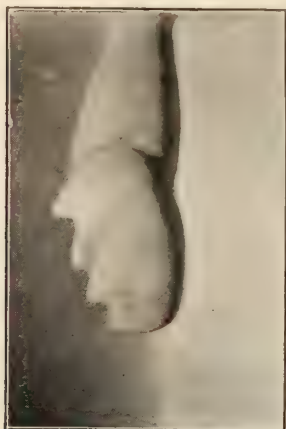


FIG. 17.



FIG. 18.

In extensive compound cavities as illustrated in Fig. 17, showing labial aspect. Fig. 18 showing aspect from mesio-labial direction.

This irregular outline results in a less conspicuous line of demarcation between the porcelain and the tooth enamel than if the margin were cut in a straight line and obtains the essential right-angle margin.

IN CUSPIDS.

In compound proximal cavities the labial wall should be prepared as indicated in Fig. 19, so as to have the margin A-B at as near a right-angle to the incisal edge as is possible.

Cavities of this nature in cuspids which approach near or to

the cusps, should have the labial margin carried over to point A in order to obtain a strong margin; to leave the margin at point B, Fig. 20. would result in a very frail inlay margin, which would in all probability chip off.

CAVITIES INVOLVING ENTIRE INCISAL EDGE IN INCISORS.

Very rare, due to accident or imperfect development.

These are the only cases in which pins are resorted to for retention, but if you do not use them you will be obliged to extend the cavity down the lingual surface, stripping off the enamel for a distance of two or three millimeters; a severe and unnecessary ordeal for the patient.



FIG. 19.



FIG. 20.

The tooth is ground down, as before, to sound structure and to walls well supported by dentine; then a groove is cut mesio-distally across the tooth.

Then the edges of this groove are planed down so that the cavity bevels toward the center, the bevel being at about right-angles to the face of the tooth (Fig. 21, the light points showing retentive position of the pins.)

Two slight pits are drilled with a round bur, equal about in diameter to the pin of a facing, at points midway between the center and the mesial and distal edges respectively.

After the matrix has been constructed, invest it (For the benefit of those who may want to know just what to invest it in, the writer is using the investment material prepared by Dr. A.

E. Peck, of Minneapolis.) Then with a round bur, of the diameter of a facing pin, drill through the matrix at the places where the pits show, and into the investment to about the depth of two millimeters. Remove the pins from the facing, cut them to a length of three millimeters and insert them in these two holes. When in position, the heads will be about one millimeter above the matrix (see Fig. 21-B); then high-fusing porcelain body is packed in the matrix and about the pins (the writer uses ground tooth body) and fused. After this, remove matrix and pins from investment, and drill holes in the tooth, at points where the pits were made, to about the depth of two millimeters.

Then the matrix is again adjusted to the cavity, it being easy to force the pins to place. Afterward complete the inlay



FIG. 21.



FIG. 21-B.

with some of the medium high-fusing bodies. The finished inlay is shown in sectional drawing. (Fig. 22, dotted line section showing relative position of the pins.)

COMPOUND OCCLUSAL CAVITIES IN BICUSPIDS AND MOLARS.

If the teeth have deep sulci-prominent cusps and there be considerable overbite, porcelain inlays are absolutely contraindicated in the average proximo-occlusal cavity that we find, unless the cavity is so extensive as to pass beyond the tips onto the down-slope of both of the cusps. (Figs. 23 and 24.)

No cavity preparation can be devised that will not result in an inlay with acute-angle margins that will certainly break down

The question of mechanical retention is very difficult to solve and it is in these cavities that most of the failures have occurred and will continue to occur if porcelain inlays are persisted in.

Fortunately, however, gold inlays may be inserted in these cases if an inlay is deemed best. And in the average cavity it does not result in a glaring display of gold.

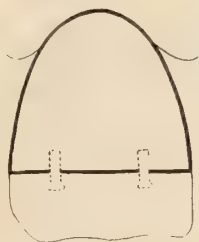


FIG. 22.



FIG. 23.



FIG. 24.

Of course, if, owing to malocclusion or loss of tooth, there will not be any stress brought to bear upon the margins, then a porcelain inlay may be inserted, although it will be difficult to obtain inlay margins without flaws owing to the fact that the edges will be so thin unless the center of the occlusion surface of the inlay be built up until it is convex instead of concave.

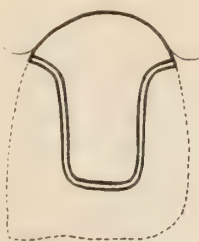


FIG. 25.

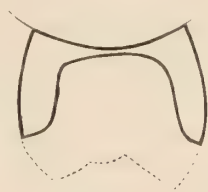


FIG. 26.

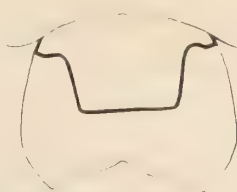


FIG. 27.

COMPLEX CAVITIES IN ALL TEETH.

If these cavities be in the teeth the pulps of which are dead, as is usually the case, they should be crowned. If in a vital tooth, which is rare, the preparation for incisors is simply a combination of that described for the proximo-incisal cavities, and for those involving the entire edge, except that no pins are necessary in the incisal portion. (Fig 25 lingual aspect.)

The preparation for bicuspid and molars is indicated by Figs. 26 and 27.

To sum up: Study well the field for porcelain inlays and confine them to it.

Prepare cavities so that they will be as retentive as possible in the line of probable stress, and so that the resulting inlay will have strong, thick margins.

Apply yourself to this work with a conviction that this is an essential method that you must, and will, become proficient in, and your results will be a source of gratification to both your patients and yourself.

DISCUSSION.

DR. J. Q. BYRAM—I wish to concur in the paper practically as a whole. I wish to express my appreciation of it. I want to say a few words in regard to enthusiasts. I think that there are two classes of enthusiasts, one class which does a great deal of harm to the profession and another class which does the profession a great deal of good. Those who are so radical as to be dishonest, if we may put it in that way, are the ones who do the harm. Those who are radical and who are honest do a great deal of good by bringing certain things before the profession.

By a man being a radical man who is dishonest, I mean one who is continually writing articles and getting up before associations, making statements which he knows are not good in actual practice. We are all teachers and when a man appears before the association he appears there as a teacher, and the statements that he makes are liable to be misconstrued. If a man who is considered an artist makes radical statements, which have been made here in the past, men go away from the meeting and try to do these things, and because they can't do them they become discouraged. Very many men have become discouraged with inlay work simply because their ideal is so high.

I agree with him wholly in his classification of indications for inlays. Those who believe or say they can insert inlays in all forms of cavities, and especially in these cavities which it is impossible to prepare for cement fillings, I assure you in most cases their patients will be in the hands of other dentists, or back to them in a short time. And that is one statement that

has caused a few men that I know of to go astray in cavity preparations. They had an idea that all it was necessary to do was to get hold of a tooth structure, cement and an inlay and that atmospheric pressure would do the rest. When an inlay is inserted and the air is forced out they seem to reason that atmospheric pressure is the best thing that it is possible for them to have.

I want to call attention to what he said of these cavities to which it is impossible to get access. I contend that when a cavity is so formed and conditions are such that it is impossible to remove the matrix without denture that something is indicated besides an inlay. In many cavities on the molars when we remove the matrix there is a tendency to distortion. In cases of this sort I would suggest something else.

I cannot quite agree with the Doctor in entirety on his system of cavity preparation. I am with that as I am about inlays. There is not a week but what some dentist says to me: "Inlays are not practical. When they get them more serviceable I will take them up." This is not the point. Inlays are practical. It depends upon the perseverance of the individual, of course. If a man cannot construct an inlay, then to him they are probably not practical.

I have not studied this system in its entirety and I know nothing of many points. I want to mention a few points which it seems to me might be corrected. I haven't had any trouble in preparing cavities or the surfaces of teeth, but I don't make any such angles as these angles. In fact, I try to diverge my walls as you have represented them there and I pay no attention to angles at the center and I'll show you how I do it, tomorrow. I do not quite agree with him on the preparation of a cavity for a simple proximal incisor. I prepare my cavity the same as he does except instead of making the lateral surface smooth it is more in the form of a curve. I have never used his system of preparation for proximal incisal cavities. I have had two or three cases, but I have been compelled to use reverse curves, not as he has done, but on account of the condition of the tooth. Now, my experience has been with these conditions that on the lateral surface we have at least two thicknesses of foil, so when the foil is removed from the inlay there is more space showing at that point than at the other. I will admit that this all looks nice on paper, but look at the ordinary tooth and see if

the angles are so gracefully formed. I prefer to use the same principle for retaining inlays in that region that I do for gold fillings. I use steps on the lingual surface, using two forms of steps, in the extreme incisal regions, and on the other as near as possible in the middle one-third of the lingual surface. The retentive resistance must be greater than the stress applied whether that resistance is in the porcelain or in the preparation of the cavity. In other words, the cavity must be so prepared that it will tend to retain itself and it must be so prepared that there will be mass enough of porcelain in that region so that when an inlay is inserted there is no danger of dislodging that inlay. In the case of the incisal region I think you will find you can cut the step on the incisal region involved in the incisal one-third as you see it represented here, but do not hesitate to extend this step out for a gold filling. If in this case the incisal edge is thin, then instead of increasing the extreme incisal one-third I leave it and begin at the middle and cut to the extreme center of the cavity, giving my step, as you see represented here.

I question these zigzag edges. I cannot see any good in them, therefore I am saying that I don't believe he can do any good with them. I will say that I am constructing all with a straight edge. There are three colors—three blending colors—and it may be he cuts a zigzag edge so that he can run one color there and it guides him to the next. Probably he makes his backward curve and goes to the next color and reverses. I am going to try that. I am simply giving my points from the theoretical.

I do not like the preparation of his cavities with angles. Now those of you who have seen these little cuts down on the surface know just what is necessary. I have two or three objections to this theory. In the first place it weakens the porcelain filling. In the second place he has an inlay in this region and for any one excepting Jack Nyman, who never uses any cement under his fillings, you would find that there would be a difference caused by the cement.

When it comes to bicuspid, I believe that they are the poorest teeth of all for inlays. This is one point on which we agree. You will find that it is almost impossible to prepare these teeth, but what they will have faulty margins, and he has very nicely showed you the effects of this. When it comes to the molar, I would much prefer some form of filling, or a gold inlay. But there are many cases of mesial surface cavities of

molars. In cavities of this sort cut away all the tooth you can and then a little bit more and you will come nearer getting at it. Now, taking the molar form of cavity. I use the same system that I would for a gold filling, except that I have no undercuts. I have my centers flat for gold fillings and I have my step flat and cut away enough of the lateral or lingual surface so that the mass of porcelain may come beyond cusps, giving a strong mass of porcelain.

He spoke of those cases for molars, where practically all of the crowned tooth had been destroyed. A crown is better I don't know but what I believe that. Yet, I am so interested when I get one of these cases I like to see what I can do with a large porcelain tip. We are going to have patients at the clinic tomorrow and we are going to have one of these tips. In a tooth of this sort I do not care if I grind this tooth almost to the gum. I go after this tooth on the same principle that I would for any form of an inlay, having the center flat and I go ahead and construct it.

On behalf of the society, I wish to say to Doctor Nyman that I appreciate this paper and I think it is one of the best that has ever been written on inlays and I am so glad he took the conservative side of this question. {

DOCTOR STINE.—I am very much interested in porcelain work just at the present time, but I feel that it would be very presumptuous on my part to discuss a paper by Doctor Nyman, for a great many of these cavities I have never come in contact with and have never even tried to make inlays for. I am trying to be conservative and am simply experimenting on these lines.

DOCTOR HOUSE.—I think it is not necessary for me to take any time at all in telling you about the preparation of cavities, because my experience has been very limited in that line. I might, however, tell you of my first experience with a very simple cavity. I tried to prepare that cavity according to directions, as I had understood them at the time, and I did the very best I could. I moistened my filling with spittal and a little pressure. I was perfectly satisfied with it and so was the patient. I was almost certain that I would never see that patient with that inlay again. I did see that patient, but I didn't see the inlay, and I came to the conclusion that some of these ideas about the

preparation of cavities and your depending on the inlays being held there by atmospheric pressure were not very good and I had better try and get something better in the form of a retainer. I believe I could name some of you who have had about the same experience. You take these compound cavities as they are illustrated there and it all looks very nice, as one of the other gentlemen has said, but there are several drawings that if I ever get a tooth in that condition or get a tooth where it is necessary to get it in that condition there is something else going to happen to it except getting an inlay to fit in there. You may take all of these steps that you want to and have all the angles and curves you want to, but I'll tell you, when you get the force of mastication on the edge of one of these angles something will happen.

I think the thing to do is to go about these fillings in a rational way. Possibly in two or three years we will be discussing some other form.

I want you to understand that I am thoroughly in favor of porcelain inlays. I have seen some work that it seemed to me couldn't be beaten. It was certainly very beautiful. Any one that could look at such work as this and say it was not a success—well, all I've got to say is that his ideas are different from mine, anyway.

DOCTOR CHEESMAN.—I don't know that I ought to get up here and discuss this paper, but I am sure I don't agree with Doctor Nyman very much, and after seeing Doctor Byram's cavities I think they are what I would prefer, but I don't think Doctor Byram goes quite far enough. I think that a cavity should always be extended to be made as broad as possible in the center, and I think it should always be flat instead of rounded. Doctor Nyman's paper was nicely edited, and it has certainly cost him a great deal of time. He said that in a proximal compound cavity it was necessary to give it a great deal of attention—a great deal of preparation. I find I need less preparation in that class of cavity than any other.

DOCTOR NYMAN.—In many cavities where simply a cutting away of the walls and dentine and enamel is made, I get a tentative form and very little cutting is necessary. If, however, I am going to prepare the cavity for a certain inlay I will have

to cut away the sound tooth structure and wedge the teeth apart.

DOCTOR CHEESMAN.—I don't agree with you. I don't know that I can say any more on the subject except that I do not agree with Doctor Nyman about making an inlay on a broken-down tooth. I think it should be crowned. I think if we can save it with an inlay for five or ten years and then have to crown it, it would be better work to crown it in the beginning.

DOCTOR WERNER.—I was very much pleased with the paper and with the discussions, and it certainly accords with my opinions. In the first section, I agree thoroughly in the preparation. I certainly agree in No. 15. This is a good preparation for the retention of porcelain. However, if I were preparing this I might make the incisal edge somewhat stronger or deeper than it is in Figs. 16 and 17. In the preparations of cavities 19 and 20 I think they are very well adapted to the retention of porcelain. I also think Nos. 21 and 22 are good. I believe the cavities are well prepared. I believe the porcelain by the inception of paste is far more superior than by removing the structure and inserting the root or making a groove for the retention of the porcelain.

DOCTOR HUNT.—I presume there is no one present that displays a general wealth of ignorance more than I do on this subject. But I want to compliment this paper. I agree with the Doctor as to what he has said about when porcelain should be used and it seems to me his cavity preparation is fine. When I look at these photographs I am reminded of the remark I heard in the laboratory last winter. It seems to me this remark indicates the only way that Doctor Nyman will ever get application on his inlays. The young man said that he thought the best way to do would be to pack the body of the cavity and then tell the patient to go to Hades. I think this would be the only chance.

QUESTION.—I would like to inquire of some of these porcelain experts who seem to be here, and have been talking a great deal about porcelain work but have never broached my subject, about baking. I had a case, and I took particular pains with it, and I dismissed my patient and I told her to come back. I thought there would be no more trouble with this tooth. I

baked one filling and then I baked a half dozen before I could get one that would suit. When the patient came in I had the filling all baked and was ready to put it in. I was very happy until I put the inlay in the tooth; then things were different. I wondered what was the matter. I would push the filling from one side to the other; on either side it would fit perfectly and looked beautiful. The only trouble was that on either side I could put in a nickel or a half dollar. Of course there must have been some scientific reason for this. So I would like to hear from some of these experts on baking.

DOCTOR NYMAN.—I would like to see this discussed, but there is a field for porcelain inlay and for cavity preparations that is a very essential factor in this work, and it is due to the fact that we have never known or experimented about the field for the porcelain inlay, and what importance it should be given in cases of this sort. We have had very many failures. There have been many things said and many things written on baking. But I think the subject that should be discussed here today is porcelain filling, and your subject can come in later.

DOCTOR McCURDY.—I haven't anything special to say on the paper, but I want to thank Doctor Nyman for his suggestion in No. 5. I think it is a neat little trick. I frequently place these things in position and take an orange stick with a little wax on it and mark it so that I know as to its relative position, but this is not as good as your suggestion.

DOCTOR THOMPSON.—I would like to square myself with the association by putting Doctor Stine on the program to open this discussion. My reason for putting Doctor Stine on was not that I thought he knew very much about the work, but I have seen some of his work and it is as beautiful porcelain work as I have ever seen, and if he can do work of this kind and can't tell us any more than he does about it here—if he really knows as little about it as he apparently does—he must be a wonder. It would be to our advantage if he would tell us something about it.

DOCTOR NYMAN.—I have no more patience than Doctor Byram has with enthusiasts who manufacture cases out of their imagination and report them to the society. I want to say in

the medical profession I have heard some surgeons speak in this manner: "Yes, he's a wonderful man. He manufactures more cases than anybody else would think of."

I was afraid my outline on this work would possibly be very strange and radical to some of you. I am very much pleased to think that all of these Doctors only disagree with me in some of these extreme cases. Furthermore, I want to say I gave what I thought the best preparation for the average class of people. Of course we meet with particular cavities which make it necessary to modify our characteristics. If I should try to describe all of these modifications that are necessary in different cases and kinds of teeth that we have to deal with, I would keep you here all afternoon and night.

I will not criticise Doctor Byram on what he has said, except to say that his process incurs too much loss of the tooth. He makes too much work. It doesn't do any good to extend the cavity along the lingual edge of the tooth, but simply gives it a little greater surface for the cohesion and retention of the cement.

DOCTOR BRYAM.—I didn't say it would be stronger. I said the retention would be greater.

DOCTOR NYMAN.—Not at all. You said it just as I have indicated it.

DOCTOR BYRAM.—But where did you get your resistance here?

DOCTOR NYMAN.—I had a very much more difficult cavity to construct the inlay for and to fit the matrix to. Now, the only trouble with Doctor Byram is, he hasn't been at this long enough. He is only at the second stage of cavity preparation. He will be all right in a few years. Furthermore, I am opposed to cutting away the lingual walls of the enamel because it is seldom strong enough to resist the incisal stress. Furthermore, there is some objection here to retentive power of inlays in the lingual structure. I was very much pleased when Doctor Weirick came forward and told me that he had been preparing cavities somewhat after the same manner that I have illustrated in Figs. 15 and 16. It is very few men that I run across who tell me that they have ever had success with this. I should feel

very badly if this method of cavity preparation were original with me; but, gentlemen, two or three of the men whom I regard as most expert men, have been preparing cavities just like this for years and they advocate this method stronger than ever.

I have illustrated two or three methods of cavity preparation, but these are simply modifications called into exercise in different cases. It is very seldom that we find teeth such as are indicated in Figs. 17 and 18, but when we do find them this is the best cavity preparation for such cases.

I don't believe I have any more to say, except to thank you for the discussion on the question of porcelain inlays.

THE POSSIBILITIES OF AMALGAMATED GOLD.

BY O. H. SIMPSON, D. D. S., DODGE CITY, KANSAS.

In this brief paper I will endeavor to illustrate wherein amalgamated gold may be used to overcome a few of the obstacles that present themselves to dental practitioners.*

In my judgment it has completely solved the problem of setting Logan crowns, as it makes a perfect joint and does away



FIG. 1.



FIG. 2.

with the liability of checking or changing shade of crown, as is the case when the V-shaped space is filled either with gold, silver, or porcelain.

After preparing root, grind the crown so as to leave V-shaped space between prepared root and crown. Place small

*This system was shown in a clinic given by the author at the Fourth International Dental Congress.

amount of softened base-plate gutta-percha around the pin; take a piece of gold plate large enough to cover the end of the root, 36-gauge, 24-k., punch a hole large enough for crown pin, and place gold plate on pin over gutta-percha. Then put the crown in place on the root, using pressure sufficient to adapt the gold to root, as in Fig. 1.

Remove the crown, trim plate to circumference of root, and gutta-percha to circumference of both crown and root as in Fig. 2.

Place a thin film of beeswax on crown pin, imbed crown in a small quantity of plaster of Paris at an angle of 45 degrees, pin down, gold matrix and gutta-percha in place as in Fig. 3.

After plaster is set, remove crown and gutta-percha from plaster. Beeswax around the pin has facilitated this removal, leaving gold matrix in plaster. Replace crown in plaster as in Fig. 4, and fill V-shaped space with amalgamated 24-k. gold,

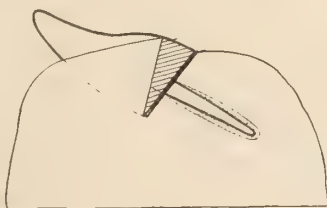


FIG. 3.

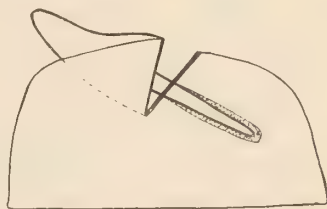


FIG. 4.

packing it in well as you would in amalgam fillings. Surplus mercury can be absorbed with tin-foil. The dryer the amalgam is worked the less shrinkage.

Place a half pint of moulders' sand over a Bunsen-burner or gas stove, heat slowly to about 200 degrees of heat, for about two hours. This will evaporate the mercury, leaving the gold a silver-grey in color. When crown is cool, drop into nitric acid, thus restoring gold to its original color. Finish and burnish. Gold crown is now ready to be set.

Gold contours for anterior teeth can be made in the following manner: For devitalized teeth use a platinum pin large enough to fit canal so there is absolutely no lateral motion. Perforate a piece of 36-gauge, 24-k. gold, solder pin to plate. Place pin in canal and adapt matrix to cavity. Trim matrix flush with tooth. Contour with sticky wax as in Fig. 5. Imbed in a small quantity of plaster as in Fig. 6, with lingual surface of beeswax

up. After plaster is hardened, melt out wax carefully and fill cavity with amalgamated gold. Evaporate mercury as before.

After mercury is evaporated, flow 20-k. solder on lingual surface of inlay while yet in the investment. Gold being porous it will readily absorb solder, thus hardening sufficient to contend with the force of mastication.

For contouring live teeth, use two or three small platinum

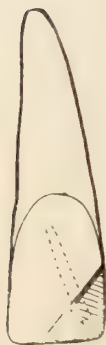


FIG. 5.

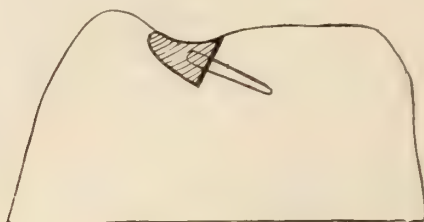


FIG. 6.

pins in matrix, as the case may indicate. Otherwise proceed as in pulpless teeth. Amalgamated gold can also be used for filling up solder bubbles in bridges, mending good plates with rubber attachments, gold inlays and contouring abraded teeth. The gold I have used with best results are De Trey's, Vernon's, and Moss Fibre.

TO REMOVE A CEMENTED CROWN-POST FROM A ROOT.

BY H. B. TILESTON, D. D. S., LOUISVILLE, KENTUCKY.

With a tiny pointed drill made from an old round bur No. $\frac{1}{2}$, drill along one side of the post to as near the end of it as possible, selecting the side with the greatest amount of dentin between the post and the periphery of the root, usually the labial or lingual aspect, to avoid any danger of perforation. Now with a Kerr spiral-broach inserted into the drill hole, literally saw the cement from around the post, thus releasing it. The best form of broach is the one with a little ball of metal for a handle. They

are stiff, and the ball being close to the spiral, lateral pressure is more effective than in those with the longer butt. It is surprising with what facility a cemented post can be removed in this manner.

METHOD OF MAKING DRILLS.

BY DR. B. BANNISTER, KALAMAZOO, MICHIGAN.

Old and worn-out engine burs, without drawing of temper, may be speedily converted into drills, by the use of the engine and laboratory lathe; the engine holding the bur being rotated in one direction, the laboratory lathe, with a mounted carborundum wheel of two to three inches in diameter, rotated in the opposite direction, the bur and shank to be applied laterally to the wheel; a principle or method often used in mechanics, where true cylindrical work is required. Small excavators, hoes and chisels, by the same method, may be reduced to smaller sizes before drawing the temper, with a distribution of metal, where most required for strength without clumsiness, and an artistic delicacy to the shank and blade that requires time and skill with files.

A METHOD OF CROWNING A BROKEN-DOWN BICUSPID OR MOLAR TOOTH.

BY C. C. MOTTINGER, D. D. S., AKRON, OHIO.

Many times we are consulted about broken-down roots which the patient desires, if possible, restored to usefulness. In such cases a good method of procedure is as follows: Clean out the root-canal, or canals, and when in an aseptic condition put in permanent root fillings. The next step is to select a suitable screw-post, preferably one made of platinum; then take a bur or drill a size or two smaller than the size of the post and drill up into the canal if a one-rooted tooth, or into the largest canal if a multi-rooted tooth, to make anchorage for the screw-post. This opening should be of sufficient depth so that when the screw-post is turned up tight it will be firmly anchored. The post being solidly in place, a measure of the circumference of the remaining

portion of the root should be taken and a band of German silver made to fit the root. The thickness of this band should be about 30 or 32-gauge. Place this band over the end of the root having the screw-post in the middle. Now fill up the band around the post with amalgam, being careful to pack it in tightly. The patient may now be dismissed and at the next sitting the German silver band should be removed. If the post is too long it should be ground down until it is even with the amalgam.

You now have a silver root built out by means of the screw-post and the amalgam to which you can fasten a shell crown without the least fear of it ever breaking off. Roots that were broken down so that no portion of the root was within an eighth of an inch of the surface of the gum have been restored to usefulness by this method with the most serviceable results.

THE SETTING OF PORCELAIN CROWNS.*

BY D. J. M'MILLAN, D. D. S., KANSAS CITY, MISSOURI.

Doctor Shannon thinks I had probably better talk about setting the porcelain crown. However, when I start on this subject I am decidedly in favor of setting the Logan crown, when I set any kind of porcelain crown. When I make that statement I don't mean that that is the only way. There are other ways and other crowns that possibly fill the bill, and some, in some places, better than the Logan crown, but what I wish to say is that I am decidedly in favor of setting the Logan crown, and the reason that I am in favor of setting a Logan crown and not some other kind of porcelain-face crown, is, that I believe it to be one of the strongest crowns we have; it is easily obtained; the color is good, and you can get them in such an endless variety that you can match almost any tooth you have. In setting the Richmond crown there are two or three things to watch or guard. In the first place, it is seldom that we have got one that is exactly the color. Now, I am making a statement here that I will probably be picked up on, but I am ready to say anything here, because I will have the wind-up. I will have the last talk, as Doctor Reeves had yesterday, and the Richmond crown, for

*Read before the Nebraska State Dental Society, 1904.

some places, of course, would probably be better than the Logan crown, but it is seldom that I use Richmond crowns, but I am compelled to use them sometimes in the making of a bridge, but there is no reason why we should not use the Logan crown altogether; in this porcelain-crown making my choice is the Logan crown. But the particular point is the setting on the porcelain crown, and there are a few things that I want to talk about. One is, don't use bands.

I have been talking this now for twenty years in dental societies. Don't use bands. Now, I don't ask you to take my word for this, but what I ask you to do is to watch your bands; that is all. There is more devilment done, more mischief done, by the setting or undertaking to set porcelain crowns with bands than any other one thing, in dentistry. Did you know that? Therefore, use as few bands as possible. Why? Because a band does not do any good; it does not strengthen the crown; and if it did, I don't want it anyway, because I have got all the strength I want without the band. A band is put on for the purpose of hiding a joint. You make a bad joint and put on a band to hide it. All I ask you to do is to watch and make notes of what you see in the way of setting of band crowns. I don't mean by this that we must not use gold crowns in the back of the mouth. Use them if you want to and fit them accurately as possible. You never did get one fitted accurately and you never will.

I am not going to talk but a few minutes because I am tired and you are all tired, but I want to give you a little idea of a certain way of setting a Logan crown. I have been watching quite a little since I have been here; I have kept my eyes open and I don't always talk about it—about the way to cut the root off in setting the Logan crown. All I have seen are cut off square in front, square across in front. That never ought to be. You must follow the line of the root or else you will have a disturbing condition here that you never can get right. Whenever you disturb the tooth at that point you can never get it back in condition. Always make the joint the best you can but leave it where you can see it. In cutting the root of the tooth—understand this does not apply to every case, because we cannot make any rule that applies to every case—if a root is broken off under the gum, then use it to get the best results possible.

But if you have to cut the root under the gum so that you

can place the crown, do it so that you can see that joint all around. If in front, place it under the margin of the gum so that we can push it up and see all around. Get a line lower than the gum so that you can see that joint all around. If my crown does not fit, if it is too much off the root and extends over, if that is made under the gum, we find that in almost all cases, and in all of the cases that I have been able to get hold of, where I cut the root and that crown does not fit, if it is placed under the gum, there is either a shelf that the porcelain part makes or else it is too small for the root; if it is left where we can see that we can certainly fit it better than if it is under the gum. If the crown part is too large it is a very easy thing to bevel. On the other hand, if the root is a little too large, it is a pretty easy matter to bevel this, it leaves a self-cleansing surface, the root of the tooth ought to be cut concave from side to side, and a little concave from the bottom to the front for the purpose of fitting the Logan crown between the edges and in the center come together; if you want to make that joint exceedingly nice, and don't want the saliva or anything in that, you take a sheet of gold. I have set a great many this way, however. There is nothing very extraordinary about that at all. I just take a sheet of gold and fold it over and as we fold it down it folds pretty even, as many as ninety-six thicknesses, if you please, make a bed and push the pin of the tooth through like that; after fitting this up as accurately as possible now in that condition, make a flat bed, and place it in the tooth, with a little cement, and drive it up to position; then hold it there until the cement sets; take the point of a knife and cut it off around the tooth and burnish it in position, and you have a line of gold about the size of a pin, and something that makes an absolutely water-tight joint, and after it sets with the cement you get good results. The trouble about setting in porcelain crowns and bridges is that we throw the bearing too often on the crown, and there is no crown that is made than can stand the force. In setting any kind of crown or front bridge, where we circle there to get the leverage, it is impossible that it can stand if you throw the weight of the jaw on the crown of that bridge. If in setting the crown we relieve it to the extent of a sheet of a paper, so the teeth don't touch it, the crown will stand indefinitely. If in

setting these crowns you relieve the pressure you will not have trouble with any of your crowns.

DISCUSSION.

• DOCTOR BRUENING.—Some people use gutta-percha in setting a Logan; use a sheet of gutta-percha at the base of the root, set in the cement and put the crown in place. Sometimes the gutta-percha is forced out, but if it is properly done the gutta-percha will stick.

DOCTOR McMILLEN.—If you will allow me, there is one thing I forgot, and it is a very important thing which I have found in fitting a Logan crown, especially the porcelain crown. Men have asked me how I get my joint. After you prepare the root, don't grind it to get the position you want, just grind the crown so that it comes partly in position. You don't need impression-paper for every time you place that crown in position. At the point it touches you get that spot wet. Now if you notice that immediately on taking it off, it is the best guide in the world. If you happen to bleed the gum you get a little blood on the end of this root, that is a good guide, but it is not necessary to bleed the gum at all in setting a porcelain crown. If you just watch it, wherever it bears, you will see this little wet spot on the opposite side, and you can fit the crown accurately and readily just by that means. It is one of the best guides I know of.

DOCTOR MORRISON.—I have always been somewhat of an enthusiast on the subject of Logan crowns. While I was in school here, that was one time when we organized a debating society, and the discussion was on the question of Logan crowns and Richmond crowns, and there were a great many enthusiasts for the Richmond crown in our class and I always had to defend the Logan crown. I was pleased yesterday with what Doctor McMillen said about the Logan crown. You go out over the country and you find that there are some who do not use the Logan crown at all. When you compare the Logan crown with the Richmond crown, it always proves satisfactorily to my mind that we are justified in favoring the Logan crown.



THE COMPARATIVE VALUE OF FILLING MATERIALS.*

BY F. D. SHERWIN, D. D. S., LINCOLN, NEBRASKA.

The importance of this subject is apparent, and new interest is awakened when we consider that the success of the greater portion of operative dentistry depends largely upon the proper selection of the material used. Doctor Ottolengui, in his methods of filling teeth, aptly says that there is but one best material for a given case. Considerable interest has been manifested in inlay work for a few years past, especially that made of porcelain. My experience with porcelain inlay work dates from the time the subject first appeared in the literature of our profession. I am satisfied that it is a valuable process where esthetic considerations are of more importance than permanency. But it seems certain, however, that on account of the exactions of the process, and the brittleness of the material, and because it does not possess great preserving properties, it is destined to occupy a comparatively narrow field. It is quite certain that the porcelain inlay is far superior to the cements upon which it depends largely for preserving qualities, but its permanency is yet untested. It is the opinion of the writer that the greatest number of mistakes are made in the selection of material for the teeth located posterior to the cuspids, and it is the filling of these unexposed cavities that I wish to consider in this paper.

The periodical literature of the present shows that the profession is studying cavity formation rather than materials. I believe that the articles upon this subject by Black, Johnson, Harper, and others will mark an epoch in the progress of our profession. While the proper formation of the cavity is of so much importance, still we should not lose sight of the need of the selection of the right material with which to make the filling.

In studying the materials at hand for filling cavities in posterior teeth, let us confine our thoughts principally to the two materials usually selected, namely, gold and amalgam. In considering the properties of gold, that render it available as a filling material, let me quote from Taft's operative dentistry published in 1882: "Of all the metals that have been used for

*Read before the Nebraska State Dental Society, 1904.

filling teeth, gold possesses more of the requisite properties than any other, sufficiently so for all practical purposes." In the same volume the article on amalgam reads, in part, as follows: "On removing an ordinary amalgam filling that has been worn for some time, its entire surface will generally be found oxidized, and a tooth filled with this material generally becomes blackened, and its appearance ruined. So great and so numerous are the objections to this material that it is wholly discarded by some in the profession and but sparingly used by others. Its adaptability is the main property on which are based the arguments in its favor." I will also quote briefly from Dr. A. G. Bennett's article, which appeared some years later in the "American System of Dentistry:" "Gold having the largest number of required attributes has always been and still is the most useful material for filling teeth." Again, he says, perhaps the most general rule that can be given for amalgam is this: "Keep it out of sight." Dr. S. G. Perry, in speaking of a common defect in amalgam fillings, recommends that the marginal groove be filled with gold.

I have given these few quotations from among the leading men of a few years ago to show that the good and bad properties of these two materials have been studied in former days and conclusions reached. I think it would not be disputed to-day that gold possesses more desirable properties for filling teeth than any other material used in dentistry. In dental literature of some years ago, we also find there was a strong feeling against the use of amalgam, and some dental societies even declared its use to be malpractice. But, despite the statements of these authorities that gold is the best material to preserve teeth, we must admit that amalgam, whose only recognized merit is cheapness and adaptability, is the material usually selected for these teeth. It is not the purpose of this article to discuss the reasons why gold preserves the teeth better than alloy, since this has been done many years ago. But as long as amalgam fails to arrest decay this subject should not be allowed to pass from dental literature. Amalgam fillings have been known to remain in teeth for many years, but this is so unusual that it serves only to be mentioned as one of the proverbial exceptional cases. But after some years of observation I feel warranted in saying that

recurrence of decay usually takes place around fillings of this material.

The familiar statement that the average life of an amalgam filling is five years is not easy to demonstrate, because one operator would not replace a filling until it had become loose, while another would consider it worthless as soon as there is evidence that it had not arrested the progress of decay. Much credit is due to those who have made a scientific study of this subject, for many changes have been and are being made in this material with promise of better results. Still we have little evidence that the alloys now in use are very greatly superior as tooth preservers to those of many years ago, which were so objectionable on account of discoloring the teeth. It must also be admitted that gold does not always arrest the decay, but in almost every case the cause of the failure can be traced to imperfect manipulation or improper cavity preparation. Many times have I demonstrated the superiority of gold over amalgam by placing the two materials in similar cavities for the same individual. One case in particular is that of a young man, sixteen years of age, whose teeth were decaying rapidly, and upon examination forty cavities were revealed. Having just listened to a lecture on amalgam by Wedelstaedt, I felt confident that even this set could be saved. Four front teeth were filled with gold, and all the other cavities with amalgam, including four other anterior cavities, because of the waning endurance of the young man. These fillings were inserted four years ago and none of the gold fillings showed redecay, while similar fillings of amalgam in the front teeth were nearly ready to drop out. Some of the posterior fillings were out and only a few were considered desirable to leave. This is only one case out of several for whom I have worked, whose teeth were extensively decayed at an early age, where the worthlessness of amalgam is so apparent, and where gold has remained perfect to all appearances. I have also proven the superiority of gold for young children where the condensing must be done with extreme care. I will venture the assertion that the greater the tendency to decay the greater the need for gold. The reasons often given by many operators for using amalgam or cement is that the teeth are too soft to hold gold, or that they are not worth filling with material so valuable, or that the children's teeth should not be filled with gold until they

have first been filled with cement, to harden them. My answer to the above is to apply the rule that has governed my practice for many years; that the more difficult the teeth are to preserve, the greater the need for gold. There are cases where amalgam is preferable, but rather than allowing its proper place anywhere that is out of sight, I would give it a much narrower field. Teeth that are affected with pyorrhea may even be injured by the manipulation necessary to insert gold, and amalgam may be used to preserve them until they are lost by reason of the progress of the disease. Cases where the patient has not the endurance or health to undergo the strain of having gold inserted. Where the decay has extended to the point that if filled with gold the teeth would not have the strength to permanently stand the stress of mastication, it is advisable to fill with amalgam rather than sacrifice the remaining portion of the teeth to crown work. Then there are those who are unwilling to pay for such work. I will not discuss our duty to such people, but my experience with most people is that when they have the facts clearly placed before them there are many more who are willing to pay for the gold than most dentists suppose.

Investigation in the bacteriological laboratory, as well as observation in practice, abundantly proves that the lactic acid producing germs are not excluded by amalgam. Still cheapness and adaptability are factors of such importance that at times they outweigh all other considerations. Since amalgam possesses these elements in so marked a degree it is valuable for such work. It is claimed for some alloys that redecay does not take place around them; one of these I have been using for two years and begin to have a little hope that the claims are justified, but two years is too short a time for conclusions after the many years of disappointment. In the case of the alloy referred to, dependence is placed partly in the using of a cavity lining, with the hope that this may supply the preserving qualities, which ordinary amalgam filling so manifestly lacks. If the walls of the cavity are first covered with a thin film of oxyphosphate cement and while soft, amalgam is pressed into it, we have what at least should equal the inlay for permanency. Varnish made from some of the gums or resin appears to possess merits. Oxylchloride has the disadvantage of being an irritant to hypersensitive nerves, but the advantage that it possesses of preventing the

passage of germs around the filling may be of much value, especially in devitalized teeth. Tin-foil also possesses greatly superior preserving qualities than amalgam and when skill is acquired in its use most occlusal cavities may be better filled with the material and but little more time consumed than to properly fill with amalgam.

It is the object of this paper to discuss the intelligent selection of materials for back teeth rather than to suggest a remedy for the almost universal redecay around amalgam fillings. It is my hope that many of you may investigate this subject until the unpleasant display of the discolored, rough, loose and ill-shaped dental work may be the exception rather than the rule. And may we all work faithfully and unselfishly to perfect this class of work, and until this has been accomplished let us faithfully represent this matter to those who trust to us to preserve their teeth, and strongly advise gold as the most permanent and satisfactory material with which to arrest decay, not alone in the anterior teeth but in unexposed positions as well, and many an aged father and mother, in after years, with teeth of natural pearl, will arise and call you blessed.

DISCUSSION.

DOCTOR SHRIVER.—It is always well to leave the worst to the last. Now, I don't want you to understand that I am going to take the issue with Doctor Sherwin in gold. I think gold is as good as gold. But we have cranks in gold, and we have cranks in plaster filling, both cement and amalgam, and we are getting to have some cranks in porcelain inlays. The Doctor says he has never seen amalgam fillings that save the teeth. I want to ask the Doctor and the gentlemen of this convention if they ever saw an operator, or the general run of operators, who took the same care with their amalgam fillings that they did with their gold? Probably that would account for some of the failures. Amalgam fillings are inserted all the way from 25 cents to \$1.50 or \$2.

A man who puts in an amalgam filling for 25 cents, 50 cents, 75 cents, or \$1, cannot take the time to do that work right; neither can he with cement, at these prices. Therefore he does his work to get his pay and get the next patient in the chair, and, as a matter of course, they fail. Maybe some of these fellows will fail with a gold filling; maybe not all of them, but some of them, will. Now, he speaks of children's teeth being saved with gold. I would like to have the Doctor tell me, if he had a patient four or five years old, with the temporary molars decaying, how

he would go to work to adjust the rubber band and fill one of these teeth with gold, and do it to suit the mother, and especially the patient? I want to ask him if it would not be really better to prepare that cavity the best he could and fill it with a cement filling, or even the unsightly amalgam, than to undertake to put a gold filling in that place? You can't expect a cement filling, nor an amalgam filling, nor any filling, to do the work that another filling will do if you give three times the amount of care in putting it in that you would the other fillings. I claim that is responsible for a great many of the failures. I don't pretend to say that amalgam is equal to gold in every case. I do pretend to say that amalgam is ahead of gold in certain cases; very much so. Give the same cases the same care, the same filling the same care, and I think the proportion of success would be greater than it is. It is my opinion that we would all rather insert a nice gold filling, than an amalgam filling or a cement filling, and even a nice porcelain inlay, even more than the gold, I will admit all that. But are there not cases where you cannot? Take it from a financial standpoint; are there not people who cannot afford to have their teeth saved with gold who have them saved with these fillings? I know that there are not any amalgam fillings put in in St. Louis, because I have heard the dentists down there say so, but I didn't know they was getting that way out in Lincoln. So, therefore, I will close my remarks by saying this, that the cement and the amalgam and the gold and the porcelain have come and they are going to stay.

THE TREATMENT OF PERFORATED ROOTS.*

BY S. E. BROWN, D. D. S., LINCOLN, NEBRASKA.

It is with some hesitation and embarrassment that I come before you to present a paper on a subject that many of you of longer years of practice are better able to treat and discuss. However this may be, my effort shall be to give some cases treated during my few years of experience which, together with your discussion of this topic, will aid us in a branch of our work which at times gives us much concern and annoyance.

Perforation of the roots of teeth is a condition all too frequently encountered and on which, while troublesome and uncertain to treat, is in a majority of cases attended with success.

The treatment of troubles of this nature is chiefly mechanical and success depends not so much upon materials used as the careful manipulative manner with which they are inserted.

*Read before the Nebraska State Dental Society, 1904.

The medicinal agents to be used are few and only play a minor part in bringing about desired results.

When the perforation is through the apex it can be treated and the canal filled in the same manner as an abscessed tooth in which the apical foramen has been enlarged. If there has been considerable irritation and inflammation, a dressing of aristol and oil of cloves and cassia should be forced to the apex and left until all soreness has disappeared, when the opening may be filled.

If the case has continued for some time after perforation, there is, in most instances, an abscess and must be treated as such, the method for which has been explained so frequently that it is unnecessary for me to dilate upon it. After the cause has been reduced or obliterated, the perforated cavity and canal may be filled with little cause for anxiety or further trouble.

When the side of the root is perforated the soft tissue in most cases has filled the cavity and may, because of complications, have formed a sinus externally. In cases of this character several methods may be employed, the tissue filling the opening may be removed by excision or by cauterizing, by packing with cotton and carbolic acid or oxypara liquid. If these are used, care must be taken not to leave them too long, to avoid sloughing. Iodin and trichloro-acetic acid may also be used, or, in some small perforations, only partially filled with tissue, the cavity may be cleared by packing with dry cotton, which swells as it moistens, forcing the tissue back to its normal condition. This done, wipe the cavity out with adrenalin chloride, using slight pressure, which stops all flow of blood and moisture.

If the perforation is near the gingival margin of the gum, pass a small flat stub-blade, correctly shaped, up under the gum, so as to cover the opening; dry out the cavity through the canal with hot air and alcohol, make slight grooves in the side of the opening, and fill perfectly as possible with high heat gutta-percha, forcing the filling up tightly against the instrument, burnish nicely the filling around the margin of cavity of outside wall of the root. This done, there is no excess of filling under gum and no cause for further irritation.

Should the perforation be high above the gum margin so it is impossible to cover the opening with the steel point, first treat it by forcing out the soft tissue with a pledget of cotton mois-

tened with ethereal solution of aristol, salol, or iodoform. This treatment should remain from one to two weeks. Then remove the dressing and cleanse the canal and cavity thoroughly with H_2O_2 dioxygen and dry with hot air, take a piece of warm gutta-percha and form a plug, pass it up the canal into the perforated cavity, being careful to extend it only to the outside wall of the root, and remove. This will indicate about the exact amount and size of filling required to fill the cavity, or this same plug may be used as the filling, cutting off the end so it will not reach to the outside wall margin when placed back into the opening. With a piece of cotton wound upon a suitable instrument of blunt taper-point, bathe the cavity with adrenalin, checking flow of blood or moisture, render the parts perfectly antiseptic, and again dry the canal and cavity thoroughly with hot air and alcohol, fasten the plug to some long tapered instrument, dip it in chloro-percha and place it in the opening, pressing it gradually to place, care being taken not to force it beyond the outside wall of the root. Should cases of this character prove obstinate, abscess, and continue to give trouble, proceed as with acute form of blind abscess, make an opening through the gum and process overlying the point of perforation. This may be done in different ways—by lancing, trephining, drilling through the gum and process, or with carbolic acid. With carbolic acid proceed as follows: A piece of spunk cut in crescent-shape, cotton or bibulous paper is placed about and below the place to be opened to prevent spreading of the acid on the gum. With the acid close at hand, select a fair-sized spoon-shaped excavator, absolutely clean and very sharp, dip it into acid and apply to gum, scraping it away gradually as it is cauterized by the acid, until there is slight bleeding, when the acid is again applied, repeating the operation until the process is reached. This is comparatively a painless and a bloodless operation. To open through the process, select a spear-shaped drill or trephine, one-eighth or one-sixteenth inch in diameter, and with the engine running rapidly, force the drill through the process until it strikes a probe which has been passed up the canal and extends out through the cavity. This done, sterilize and stop blood and moisten with adrenalin. Insert a flat-faced amalgam-plugger through the opening in the process covering the mouth of the perforation cavity; thorough-

ly cleanse and dry out the canal and cavity and fill as previously described, with gutta-percha or amalgam.

If a crown with pin-post is to be inserted on a perforated root, it is essential, in some cases, to cap the inside opening of the perforated cavity to prevent trouble arising when the crown is cemented in place.

Here may be described, as briefly as possible, the method used in treating a left superior lateral root on which a Logan crown had been adjusted. The root was perforated through the labial aspect of the apical third. The crown had been worn two years, during which time the patient had suffered with severe adontalgia resulting in abscess and fistulous opening at the point of perforation. With a small spear-shaped drill passed in between the base of crown and root the pin was cut off, the cement removed from around the pin in the canal and the pin removed. The canal was then thoroughly cleaned, removing all foreign matter and sterilized with dioxygen, forcing it through the fistula. The perforated cavity was then packed with cotton immersed in clove oil and aristol and allowed to remain two weeks, at the end of which time the treatment was removed and filled as previously described. With great care the apical portion of the root canal was enlarged, making the entire canal to the apex larger than necessary for the reception of a small Logan pin. A band was made of 34-gauge pure gold to fit a pin the size of the Logan pin, this lining was fitted into the canal and extended well up in the apex beyond the perforated cavity and reached down about two-thirds of the length of the canal. The canal was then dried out, the pin was oiled to prevent adhering to cement, and placed in the band. The band and pin was then set with a thinly-mixed cement, gradually forcing band to the end of enlarged portion. After the cement was set the pin and surplus cement in the canal was removed, and the Logan crown fitted and cemented in place. The result of the operation, perfect healing and complete restoration of the root to its normal condition.

In perforations of the pulp cavity the treatment is similar to that already given when the openings are small. If there is a large perforation, it is in most cases best to cap before filling. Another case treated will best serve to illustrate: A large perforation in the floor of the pulp cavity of superior right first

molar had been caused by decay, leaving thin jagged margins. The opening was washed with dioxygen and packed with dressing of cotton, aristol and cloves; this treatment was continued about six weeks, when all soreness had disappeared. All decay was thoroughly drilled away and over the opening was burnished a thin piece of platinum, getting as perfect adaptation as possible; the walls of the opening were then cleansed and dried with hot air, a thin layer of Gilbert's stopping was placed on the gum side of the cap, heated and carefully pressed into the cavity so that it adhered to all the margins of the opening. Over this was put a cement filling, the tooth prepared for and a gold crown adjusted, which has been worn since May, 1895, giving perfect satisfaction. It is not possible to treat and save all cases and this is often a very perplexing problem, the solution of which is apt to give the dentist much trouble, and he will be called upon, sooner or later, to decide whether a root that has been perforated can be saved or should be extracted; however, in the hands of a skilled operator, much can be accomplished for a badly-abused tooth. It is not well to proceed with too much haste to extract such a tooth, but it should be carefully and thoroughly examined and if it can be saved the dentist has rendered his patient a valuable service, and has the satisfaction of feeling that his efforts have been crowned with success and the pride of having overcome what at times seemed an unsurmountable obstacle. I thank you all for your courtesy and kind attention and trust you will correct what erroneous ideas I may have set forth, and make valued additions in your discussion.

DISCUSSION.

DOCTOR HATFIELD.—Don't you think there could be some treatment that would not take quite so long? two or three or four weeks of local inflammation there. Couldn't we use some form of treatment that would not have to retain that inflamed condition so long; and would it not be advisable, instead of using aristol and cassia, to use instead a more mild antiseptic, for instance, oil of eucalyptol or oil of cloves which does not irritate quite so much? Of course, plain cassia does not irritate the soft tissue, but it depends a good deal upon the kind of cassia that you happen to get. A good deal of the oil of cassia that we buy is stronger oil made from a different product. I don't think that cases of that kind need treatment so long. I think we, as dentists, overtreat more than we under-

treat, in cases of that kind and other inflammatory conditions; although, I admit, in chronic conditions of long standing it takes considerable time. I never have treated any perforated roots that have had mechanical work done upon them, outside of my own, and those I have always diagnosed at the time. Some of these I have had the misfortune to lose, I think two that I know of, and some others at the present date are doing good service. But I have found out in some of my work that if the perforation is not large and don't injure the soft tissues too much, simply stop the blood and sterilize the canal, as we should in all matters of good canal filling, and fill the canal with gutta-percha, in the regular way, being careful, if it is punctured on the side of the root, to not give it enough pressure to force through the canal out into the soft tissues; and I find that although there may be some trouble of this kind that with proper local treatment it will get along in fairly good condition. I would not suggest that this be a very large opening, and where the tooth is perforated at the apex, we all know how to get the approximate length of the tooth and fill the canal accordingly; we know the size of the instrument that has gone through and cut our gutta-percha accordingly, and we can get the length of the root and can make the point that length, and I believe we will come as near to filling to the apex of that root under these conditions as we will under the ordinary conditions where the apex of the root is still intact.

DOCTOR SHRIVER.—My impression is that the great majority of these cases that are perforated you will eventually treat with the forceps.

DOCTOR BROWN.—In regard to that one I treated in that way, the patient was a fellow dentist and I treated him while I was working in his office. Now that tooth has rendered him over nine years service, and if it does happen to be extracted at some time in the future the service that it has given has well paid for the work that has been put upon it. I never have advocated the perforation of the root; we never should perforate the root of a tooth, and in most cases it is carelessness in our effort to open up a tortuous root canal to try to do the best work we can. I think that, possibly, in going to fill the root of a canal in some cases we get through the side of the root. Now, that is wrong. In fact I never had but two cases of that kind in the nine years that I have practiced.

I never did any harm with it because I was always afraid of it. But one other point that was brought up about treating a case too long. Now, if I should perforate a root myself I should immediately try to fill that opening, and I was referring to a case that came into our practice, where the case had existed for maybe a month or two months or six months, and in this case I gave the lady a Logan crown and she has worn it for two years. Now in that case where the root of the canal was lined with a gold band, a platinum band might as well have been used, but I have seen that case within three months, and it has been worn over two years, where there was a large fistulous opening and a large growth on the outside of the gum; it was all diseased and growing until there was no opening there;

and I think we cannot attempt too much in this class of cases when they come to us. We have to do the best we can with our patients when they come to us.

A NEW METHOD OF TAKING IMPRESSIONS.*

BY L. L. POSTON, D. D. S., COUNCIL BLUFFS, IOWA.

Of the different steps in the construction of an artificial denture, there are none that require more care than taking the impression. Anything new, that will be of any use in this important and difficult procedure, should be of interest to the profession. I have something useful and, I think, something new.

I might go into details of the methods now in general use, but think best to confine this paper to a method of combining plaster of Paris and wax, which I have used, to good advantage, in a great many cases. First, take a plaster impression, dry with a napkin, and warm slowly with blowpipe. When hot enough to melt beeswax on, run a layer or glaze all over the inside. Melt it into the plaster in the center of the palatal portion and leave a thicker layer at the posterior margin, and on the inside of the labial-buccal flange. While yet warm as patient can bear it, insert and press *firmly* to place. When cool, remove. You now should have as tight-fitting an impression as the mouth will stand. This should be poured without painting, as the wax will not adhere to the cast. The cast will not need scraping. If a good plaster impression is to be considered as the proper thing to tie to, then all the wax you can get to stay on the inside of the flange and across the posterior part of the palatal portion should be considered, to make the impression just that much better or tighter fitting. In other words, you bring the pressure to bear on the places where desired by placing of wax instead of scraping the cast, which is a very unscientific procedure. I will admit that the wax will not always do just as you would like to have it, but it is an easy matter to rewarm it and try again. This is to me, in some cases, a great help, and I trust it may prove so to you.

*Read before the Nebraska State Dental Society, 1904.

DISCUSSION.

DR. H. W. SHRIVER.—I have always thought that there was nothing better to take impressions with than plaster of Paris, and I am still inclined that way. This pouring or heating or sticking of wax to a plaster impression, after you have got a perfect impression, I don't know whether that impression, in all cases, could be put back in the mouth. If it could, I am of the opinion that it would take so long to get it back perfectly that the wax would have chilled so much it probably would not adhere, it would not go to place as nicely as the plaster of Paris had; it might leave a surface thicker in some places than others. However, I have no doubt this method probably is something that is worth trying. The Doctor says he has had great success with it, and I am not here to dispute that a particle.

DOCTOR MORRISON.—This is new to me. I have taken impressions with wax quite a good deal, but I would contend that if he is going to put the wax in, I don't see why it is necessary for him to put it back in the mouth. Now, if he puts that over the surface and also above the margins when he puts it in, the tendency is for him to shove off the wax at the side and he won't get the perfect impression that he had when he had the plaster alone. It seems to me it would be a much better way for him to do to simply take an impression in his wax of the parts placed in and let it go to place; it would be a much better procedure than to put the plaster in first and then take his impression with the wax afterwards.

DOCTOR WALLACE.—This is a matter that came up once before in the Tri-state Dental Society. I, like a great many others, was very skeptical in this matter. Not being a crank on this subject, nor on any other I hope, I thought I would give this a trial. I happened to have a case I had considerable trouble with at this time. I had one of those typical mouths; it was a mouth that I should think was a typical place to use a method of this kind; it had those hard and soft parts that have been mentioned. But about all I could say on the subject would be, if a person would just try it, it would surprise you. It surprised me. But, being a little skeptical in the matter, I did try it, and I was very agreeably surprised.

DR. A. O. HUNT.—There is so much involved in taking an impression that, certainly, I have no feeling of criticism over a method that may be used, if it gets better results. Doctor Poston, I know, is careful in his methods of doing everything; and the principle of it is certainly right, because the using of plaster of Paris alone, we never get it out of the mouth so that it gives us a perfect impression of any mouth; that is not possible with any material I know of. Now, if the using of the wax as an auxiliary in that way gives a better adaptation, which I can readily see that it might, it would accomplish what we have been trying to accomplish in the model itself; and, as Doctor Wallace says, if you are skeptical about it, the only way to satisfy yourself is to try it, test it. There is certainly nothing about it but what ought to appeal to anybody to make an effort

to determine its value. I believe it has some value and for that reason I requested the Doctor to prepare the paper and present it to the society.

DOCTOR CROSS asked a question in respect to the method of taking a certain kind of impression and Doctor Shriver replied as follows:

DOCTOR SHRIVER.—This way of taking an impression is, in the first instance, the natural thing with all of us. I can remember back when I used to refit rubber plates. I have done it with wax, replaced it, placed warm wax on it and pressed it in the mouth, let them close their mouth together, and in that way refitted it; places where you could not very well get the same result with plaster on account of the undercuts. I have done that years ago. It seems to me that in taking an impression, to make a more perfect impression, that I should just reverse it, as the Doctor here suggested; take the wax impression first if you did not wish to cut out. I have taken them without cutting out any of the wax. Generally we cut out a little bit where we want the pressure around the posterior part of the mouth, around the soft palate, but you can take it with wax and then put your plaster on and prepare it and set it in again; in that way, you would have no trouble to replace it; but in the average case you would have considerable trouble to replace. Perhaps the Doctor might argue that those are cases that would not need it, where the undercuts would probably hold well, and in such cases you would have no trouble to replace. But in some cases you could just reverse it. Take it first with wax and then put plaster over it, and we have good results and less trouble in replacing. However, I am not sure but what there is some merit in this method. I am not sure but what there is, but there is just that difficulty, I say, of the wax hardening before you can get it to its place. Now, you will find that when you roll wax up on a plate and push it in it will harden so quick that you don't get it down, or even the plaster, sometimes, in an impression. It will surprise you, the thick plaster you will get in refitting the plate. I presume the most of you have done that refitting with plaster. I had a case the other day; it saves resetting and it is done very quickly. The only difference is, it is sometimes difficult to start, if there are undercuts, because you have got to pull it out all at once, and it sometimes will break, but you can refit in that way very nicely.

DOCTOR SHERWIN.—It seems to me that in getting an impression of the mouth, that the proper thing is to always replace the impression in the mouth, without being soaked in water, and before dismissing the patient try and get an impression that will hold in the mouth before you attempt to make a plate over it. I have tried a plan that I thought was a good one: After taking a plaster impression and placing it in a modelling compound; then cutting it around the periphery of the impression, then putting thin plaster on that, and taking an impression without much pressure. You have got a little pressure all around the periphery of the plate, leaving it without pressure, perhaps, on the center of the plate. You have a pressure where you want it. Now, I thought I got good results with

that. And I had several schemes that I thought was going to make this plate wear easy, and then I have tried it a few times more and failed with it, and, finally, have tried some other plan. I think a good way to get an impression of a mouth is to begin by taking one, placing that in the mouth, and if that fits go no further; if not, be ready with another plan, and try that, replace that in the mouth and see if that will stick; and try all these plans on the same mouth until one works.

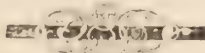
DOCTOR McMILLEN.—There are a few things I would like to state here in regard to the impression. It is an exceedingly hard thing to get an accurate impression with plaster of Paris.

It took me a long time to learn that; and when we take a plaster impression with the hope that it is going to be a very accurate impression, we fail to understand or think of the drooping at the back for one thing, and that is the reason it is a pretty good way (if Doctor Shriver don't know a better way), it is a pretty good way, to bolster up the back there with wax. I have done it a thousand times, probably. That is the reason the plaster may drop back on the cup, and if the cup is not quite long enough, we push the part up with beeswax to hold the plaster up in position as far back as we expect to go. It took me about ten years to find out the cause of that dropping at the back. I would take what I thought was an excellent impression of plaster, perfect, seemingly; when I took it out and put the plate in, I found that the posterior portion of the plate stood off from the roof of the mouth; that is the reason the plaster dropped. Another reason, cutting the rim of the plate, the plaster will drop there and fall away; it is not a quite accurate fit at that point. Now, in taking an impression, the wax business was new to me. I should just reverse the thing. The most accurate way is to take a little beeswax and put rosin in it and you get a little harder wax, and then cut up the palatal portion and you get an accurate and positive impression; the very best that can be taken, I think. But if we are going to take off a full case, I first take an impression, this wax business was new to me. I should just reverse compound, take that out of the mouth, trim it up, and get it in position in the back of the mouth, then warm the posterior portion of the modelling compound and push it up thoroughly with the thumb or fingers; throw a little water on it so as to cool it quicker; then take the impression out, have it properly in position, and warm this rim, place it back in position and get the patient to work it down as much as possible, so as to get the markings, and then take it out again. I am not giving this in detail. Take that out and you get as accurate an impression as it is possible to get, accurate enough to make a pretty good plate; more accurate than is often done with plaster, and more accurate than a great many work up to, if you are going to take time with the modelling compound. I don't believe there is a mouth you will find in your practice that you cannot make a plate that will stick respectably well if you follow that system. It is not mine, however. I haven't any system. I got that from Doctor Green; a friend that I used to be with. I don't give it as my system, but it is a mighty good way to take an impression.

There is one more point, to my mind: It is not necessary to trim or scrape a plate, if you get an accurate impression; and when I have taken an impression this way and gone through it properly, I don't have any apprehension at all of that plate staying in the mouth; I don't touch that impression after I get the impression. One of the main things in this plate is to not touch this rim here with a file or a knife, after it is vulcanized. You let the air under it and your plate never stays as well.

DOCTOR HUNT.—I just want to say a few words here about mouths. I don't know of any one kind of material that will give a perfect impression of any mouth. There are certain conditions about all mouths that need to be studied as carefully as anything can be studied; every detail of the mouth must be studied thoroughly. In the first place, it is a rare thing for the average dentist to make an examination of any mouth; they don't make an examination of it; they simply look at it. They don't make a careful examination to know what condition and what position the soft tissues may have to each other. There is another feature, too; making an artificial denture of any kind. The very first thing you do relates to the last thing you do; one detail goes into another. The first essential feature is to get the impression correct. No matter what devices or material you may use, that is the principle to be kept in mind always. You may have various methods of getting that impression, but it must be correct. Your impression should give you the margins on the plate so that you do not need to touch it at all. Now there is the principle involved in the whole of it, and every dentist ought to have ingenuity enough to meet the conditions applicable to each case, after he knows the conditions.

DOCTOR POSTON.—In the matter of reversing this system and using wax next to the surface you can get a pressure. It is very hard to produce pressure with plaster of Paris, whereas, if you have that warm enough it will squeeze well, so that it will not press very much at any place and it will take an accurate impression of the mouth. Doctor Shriver seemed to think it was impossible to get a great many impressions back in the mouth after you have taken the plaster out. The mouth is not like a piece of cast-steel; it does not retain the same identical shape continuously. If you have got a good fit you do not need to put wax in.



SOME FEATURES OF PROSTHETIC DENTISTRY.*

BY F. B. DAMERON, D. D. S., LINCOLN, NEBRASKA.

In presenting to you this paper, it is not my intention to advance any new or original features, but to try and bring before you a few facts regarding that branch of dentistry which, speaking generally, is sadly on the decline.

In the preparation of the paper, I have followed out the idea expressed by that excellent motto of the *Dental Cosmos*, than which there is none better—observe—compare—reflect—record.

Within the last few years great advance has been made in the preservation of the teeth and the pathological treatment of same, but as for the prosthetic branch of dentistry nothing, outside of rubber and celluloid as a base-plate, has been added to this science which would be of benefit to the patient who so unfortunately is obliged to wear an artificial denture.

When we make an artificial denture, we start to do three things: first, restore lost speech and articulation; second, restore or preserve the facial expression; third, restore lost function of mastication. Not all of us, though, finish what we start.

After the preparation of the mouth, which must be thorough if we expect success, the first thing to do is to take the impression. We all should know when we have a good impression, yet I believe that the taking and treating of the impression is the main cause of a large number of failures in prosthetic work.

In the treatment of the impression, the question of the air-chamber comes up. Within the last few years this part of the subject has been given a great deal of thought, and has been discussed by our leading prosthetic dentists. There is still a great difference of opinion and we must leave the question to be decided by each individual dentist himself. The placing of an air-chamber as relief requires, on the part of the dentist, a thorough and correct understanding of the hard and soft portions of the patient's mouth; yet there is many a dentist who places his relief at random, and if the plate stays up he is highly pleased with the results.

For my part, I believe in using the air-chamber judiciously.

*Read before the Nebraska State Dental Society, 1904.

What I do condemn is the manner in which so many dentists insert those clumsy, sharp-edged affairs that are intended to produce relief, but which are positively injurious. The worst of all are those which have deep excavations. They constantly irritate the mucous membrane and instead of assistance to the patient, they are a detriment.

We must study each individual case; some we will find no need for relief, while in others we will find it absolutely necessary.

Now comes the selection of the teeth. Right here I think the one great esthetic failure we have to deal with. At this point we encounter two great disadvantages, namely, the inability to get teeth of right size, shape, and color, and the whims of the patients who seem to think they know more about it than the dentists. Some cases I have seen leads me to the conclusion that this last is so. In dealing with your patients, don't try to force such and such upon them, but have due respect for their wishes; make your selection and if they object, try and educate them to the good points of your choice. Always remember you have the patient's relatives extending back to their forty-second cousins to please, and be sure they leave the office satisfied.

In selecting teeth, one great mistake is in not selecting teeth adaptable to age. We should know that teeth deteriorate with age, the same as any other part of the human body. One of the things that makes plate-work so disgusting to me, is, to go along the street and see old people with a set of nice, white, pearly teeth, that one would image could be found in none other than a young person's mouth. What is there esthetic about such a case? Not a thing. They are a walking advertisement of the poor artistic qualities of the dentist who made them.

In the selection of teeth I believe there is only one correct method to follow, and that is by trying the teeth in the mouth. I don't believe there is one dentist out of a hundred who can take this shading and, even if he does know anything about the different temperaments, select a shade which, when placed in the mouth, will come anyways near blending with the features of the patient.

Now, in regard to the teeth themselves. They are of vital importance to the success of your denture, yet who ever saw a set of artificial teeth that compared with our natural ones. The

teeth we get from the dental depot are all of one shade, while in our natural teeth we usually find a variety of shades.

In regard to the size, I find that in a large number of cases the bicuspid and molars are too small. By breaking sets and taking anterior teeth from one and posterior teeth from another this fault may be remedied.

To overcome these failures in size, shape and color we must appeal to the manufacturers of porcelain teeth; until then, we may expect the same old line.

Now we come to the restoration and preservation of the features of the patient. No matter how perfect the teeth are articulated, unless you pay attention to age, sex and facial contour, the result will be apparent and an observer cannot help but tell that the teeth are false. Our whole system is built under a universal law of correspondence and if we disregard this law in the making of an artificial denture, we throw all the features of the patient out of harmony.

After the extraction of the teeth and general rule among dentists is to say to patients: "Now go home and let the gums thoroughly harden, then come back and we will take the impression and make your plate." What happens in a case like this? When they come back we find the maxilla has become shrunken, the muscles of expression, which should have been supported, have shrunken to the contact point of the maxilla, and all the features of the patient become permanently adapted to the change.

Now, we insert our plate which restores the lips and cheeks to their normal position, or nearly so. What is the result? The effect on the expression is such that the patient complains of too much fullness; their friends notice the difference, and we find the patient more or less dissatisfied. If we are good talkers and can get the patient to put up with this unpleasantness for a while, all will be well. The muscles will adapt themselves to their new position and finally we will get good results, both to the patient and ourselves. The only way to overcome this trouble is never to allow the tissues to shrink. Preserve the tissues and expression from the time the teeth are extracted. As soon as it is possible to take the impression, the plate should be inserted. This denture would support the lips, cheeks and muscles in their normal position and in the end we would have excellent results. I realize that it is a very difficult matter to im-

press upon the patient the value to them of two of three temporary sets, but if we practice conscientious dentistry, this is the way we should educate our patients to have it done.

Now this brings us to that side of the question which appeals to us all—the commercial side. I think the following rule can be laid down: The artistic qualities of a plate are in proportion to the price paid for same. Since I have been practicing dentistry, the most puzzling question to me has always been this: Why is plate-work so cheap? If we take the ability it requires to perform the different operations in dentistry, isn't it true that for plate-work we should receive the highest remunerative value? I say, yes—if we make a plate as it should be made. But so few of us do this. For the price we now receive for artificial dentures, I say we turn out value received. No one is to blame for not desiring to make plates at present prices. A dentist with an ordinary practice cannot afford to do it, but this is no excuse for some of the botch jobs that are turned out.

You all know as well as I that dentistry has not the high standing about the various professions that it deserves. I firmly believe the reason for this is the cheap, uncomfortable, in-artistic plates that we have forced upon the public. That being the case, what shall our aim and purpose be in this matter?

The only way for prosthetic art to be raised to its deserved position in dentistry which will in turn elevate the whole profession of dentistry, is for every one to start right at this time with that set purpose in view. It will require a great deal of sacrifice on our parts and we may never reach the goal, but our persistence will enable us to come as near the mark as our ability will permit. A man who has lots of will power, but not much ability, can do more in the end than the one with the ability, but who has no set purpose.

Somewhere I have read the following which brings out this thought nicely: "Success, in its best sense, is not always found in attaininig that for which we plan, but rather in making the best that can be made of ourselves—in doing as well and rising as high as our powers will allow."

The poet Young has well said:

"Thy purpose firm is equal to the deed;
Who does the best his circumstances allow,
Does well, acts nobly; angels could do no more."

PATHOLOGY, HISTOLOGY AND MICROSCOPY.*

BY ELIZABETH C. FIELDS, D. D. S., LINCOLN, NEBRASKA.

No therapeutic measure of this age is probably attracting more consideration among the medical profession than electricity. Although man has known of the existence of this power or force for ages, yet only recently has it become a perfectly controllable means. The laws that govern the action of electricity have become as demonstrable as any of the other natural laws. In the curative art, electricity is being employed in a great number of ways, depending upon the variety, density, voltage, and numerous other conditions of the current. In the so-called X-ray we have, probably, the most remarkable therapeutic agent discovered within the last decade.

It has been my good fortune to watch some rapid cures apparently due to treatment by electricity alone. Then accidentally happening upon a dental magazine, which contained Doctor Price's article on the "Treatment of Pyorrhea Alveolaris with the X-ray," the interest was immediately aroused.

There is no trouble which so baffles the dentist as this gum disease. It often takes months of painstaking effort, both mechanically and medicinally, to produce results. And then the vigilance must not be relaxed or there will too often be a recurrence of disease. Knowing that electricity, when properly applied, would cure allied diseases to pyorrhea in those patients with gouty diathesis, it seemed probable that the article mentioned was founded upon fact. Anyway, it seemed worth trying. We selected what seemed to be a typical case. The gentleman, perhaps fifty-five years of age, had been troubled with sore teeth for years. He had been treated by different dentists at various times, but so far had secured no permanent relief. The four anterior inferior teeth seemed to be in a more aggravated condition than the others, although they were all more or less sore. Perhaps this extreme condition of the lower anterior was abetted by the irritation of excessive work caused by the loss of the four superior anterior. The gums around these teeth were swollen, highly congested, and, as is usual in such cases, bled upon the least provocation. Pus was abundant. Having no particular

*Read before the Nebraska State Dental Society, 1904.

appliances for such a case, the treatments were at first a little difficult and perhaps not as satisfactory as could have been desired. We gave the gums the benefit of the direct ray by having the patient hold down the lower lip with his hand. There was such an improvement after the first treatment that when the patient returned for the second treatment he asked if the ray could not be thrown upon all his teeth. Later, a metal plate was constructed to hang upon the lower lip, and thus shielding it from the direct rays. At first the treatments were short and the ray at some distance from the patient, but the time was gradually lengthened and the instrument placed nearer the face, until now the patient has a twelve-minute treatment with a tube distance of four inches from the face. In accordance with suggestions offered by Doctor Price, no special preparation of the patient was made. The pus-pockets were not treated either mechanically or by the use of medicine. It was simply an experiment. After a few treatments, upon being asked how his teeth were, the patient replied that he did not know he had any teeth. Since then there has been no soreness. The next improvement we noted was in the condition of the gums. They gradually took on the natural pink color and became constricted around the teeth, the swelling almost entirely if not altogether disappearing.

The amount of pus has gradually diminished until now it is scarcely perceptible, and the teeth are tightening, the laterals being about in their normal condition. If we can judge from present indications, a cure will be effected. Whether permanent, time alone will tell. Still there is much to commend this method if it is even as satisfactory as the old, for it is absolutely painless and much easier than the mechanical, both to the patient and the dentist.

Not much is known as to the whys and wherefores of the effects of the X-ray. Under the microscope we find, in general, that the primary effect of the X-ray is to increase the blood supply, producing a hyperanemic condition, while the secondary effect, by continuing the use of the ray, is that of anemia. The lumen of the capillaries is lessened and the amount of connective tissue increased. This cuts off the blood supply to the pathological area and the surrounding tissue shows abnormal activity

of cells. It is this abnormal activity of the cells which assists nature in effecting a cure.

I would like to say that Doctor Shannon has seen the case a few times and perhaps can add something to what I have said.

DISCUSSION.

PRESIDENT SHANNON.—This is a new system and some of you have undoubtedly been reading up on it, and you perhaps have your views in regard to the matter, and they will be acceptable to the society. A matter of such importance as this is should not be passed lightly. If that is all, I would state that I have seen this case twice. I saw the case at the end of the eleventh treatment. It was my misfortune not to be able to see it earlier than that. I had desired to see it soon after it commenced; the Doctor called me up by appointment but it happened that I was just at a position in my work where it was impossible for me to stop right at that time, and as he was a busy man himself, working, and had to get back, he could not wait and give me time to come, so it was the eleventh treatment before I had an opportunity of seeing the case. At this time, as the Doctor has said, the case had improved wonderfully, the tissue had taken on a normal condition, with the exception of that in the immediate vicinity inferior central incisor. I was unable at any point in the anterior six teeth to find any pus with the exception of at this one point—there was pus at that point. Later on I saw the case, just a few days before this meeting, before I came up here. It was one day last week—and the pus had apparently ceased at that point. It was only a short time, though, intervening between my two observations, so that the chances of their being no radical change was nearly eliminated you see by the small amount of time. An increase of time may make a decided change.

On speaking to the gentleman in regard to the case he told me that his teeth were very loose, very sensitive; he said that he was very fond of eating apples, and he had been deprived of the pleasure of biting into an apple because of the soreness and pain that was produced by doing this, with his teeth in the condition they were in; and he told me that after the first few treatments that he could eat apples as he did years ago, without any pain or discomfort, and he said that so far as there being any trouble or any feeling that was unnatural in his teeth, he said it was entirely gone; he said he did not realize that he had teeth there, meaning that his teeth were in a normal condition; he said that he did not even realize that the teeth were there in biting on them. And we all know that it is difficult by means of instruments and medicinal agencies to bring about so radical a change as this in that length of time; even though we had removed the soreness from the gums and perhaps tightened up the teeth some there is still a sensitiveness due to the exposure of the root, and he claimed that there was no sensitiveness to the root; that is, that the thermal changes had not affected the teeth apparently. And from

what I could see of this case, from what my observations have been so far, I am decidedly in favor of this treatment; and if the case continues to improve under the following treatments, the treatments that it is to receive, as it has in the past, it will undoubtedly be a boon to our profession. If we can accomplish such results with the X-ray it will be a great advantage to both the patient and the dentist, and we will not have to depend upon the instruments entirely; when we have a superior molar with three roots, and have to remove the tartar from that portion of the root, it is almost a physical impossibility. They say they do it. I don't. I can't. I do my best. But I have extracted teeth later on that I have attempted to clean and have found tartar at points where it was impossible for me to reach; and as long as that tartar remains there will be irritation and trouble there. If by means of the X-ray this deposit on the roots can be removed, if it does soften it and remove it, it is undoubtedly a boon and will in all probability cure the case, for a time at least.

SOME CONDITIONS WHICH HELP TO DEVELOP THE MAXIMUM ADHESION OF OXYPHOSPHATE TO DENTINE AND PORCELAIN.*

BY W. V-B. AMES, CHICAGO, ILLINOIS.

The first point I wish to make is, that I believe the question of extreme dryness of dentine surface is over-emphasized as a preparation for the cementing of an inlay. I will grant that the thorough cleansing of extraneous substances, such as mucus and other salivary ingredients, etc., is to be insisted upon, and possibly a desiccation of the *superficial* dentine, but I believe that it is thoroughly impractical and unscientific to expect to be able to flow a proper mix of cement to this desiccated surface and have it give the maximum of adhesion, *because* this cement will simply bridge across the microscopical irregularities of this surface, and the tubuli—if you please—without *knitting* into them, as the cement *must* to give maximum adhesion.

Granting that thorough cleansing and superficial desiccation is desirable, I will claim that we should then thoroughly moisten this surface with the liquid of the cement we are about to use, or possibly better, some plain syrupy phosphoric acid, and after being satisfied that this has caused the displacement of air in all inequalities of the surface, all visible surplus of this should be

*Read before the Northern Ohio Dental Society, June, 1904.

removed by air blast or absorbents. I say visible surplus, because this will not be removed by absorption or evaporation, as would aqueous moisture. This non-vaporizable material will persistently remain as a mere moist surface which will carry the cement into the irregularities of the surface just on the plan that we would moisten the surface of a plaster impression before attempting to properly pour to it a plaster model, or that a brick-mason moistens a porous brick before applying his mortar. It will be readily appreciated that the success of this depends on having no excess of this liquid.

On the supposition that adhesion of cement to dentine depends upon a knitting of the integral particles of the cement into the irregularities or the tubuli of the dentine, we can reasonably contend that the form of these integral particles will decide to a very great extent the amount of adhesion afforded. To refer again to the use of mortar by a brick or stone-mason, we will call attention to the fact that in selecting sand for such mortar, a round sea-shore sand is avoided and a sharp river sand selected, because the angular particles of this variety will be more *insinuating* when applied to an irregular surface, *i. e.*, there will be a more intimate knitting of these particles to the irregular surface. On this plan I think that I can demonstrate that a cement in which the integral particles are acicular crystals will, to a remarkable extent, more firmly attach itself to a dentine surface than one in which the integral particles are well-rounded more or less microscopical bodies. So much for the conditions governing adhesion of cement to dentine.

Of the etching of porcelain with hydrofluoric acid or the grooving with small discs, I will have nothing to say, as I would not assume to know enough of this to give points. Of a method of treating the surface of a porcelain inlay, so that there will be a chemical continuity of structure when cement is applied, I will give a description. It has been found that zinc oxid, as available in the usual cement powder, can be so fused to a surface of porcelain that cement applied thereto will literally unite with and become continuous with the particles of zinc oxid presented. This can be accomplished for retention of an inlay, by painting into the matrix—keeping back of the edge, of course—a mixture of two parts of cement powder and three parts of the porcelain body about to be used, the merest film being the proper quantity. If the matrix be then filled with the plain porcelain

and the inlay fused and completed as usual, there will be presented, on stripping off the matrix, a glazed surface which can be easily broken, exposing a thin porous layer which not only gives mechanical retention similar to an etched surface, but presents zinc oxid particles with which the cement will become continuous as has been said. If it is desirable to give a finished inlay such a surface, a mixture of zinc oxid and a porcelain of a lower-fusing point can be used for fusing upon the reverse surface, after compensating in some way for this slight layer. This, I believe, will give the maximum adhesion of cement to porcelain, and if then a cement be used which will properly knit to dentine, the danger of displacement of porcelain inlays ought to be reduced to the minimum.

DISCUSSION.

DR. C. R. BUTLER, Cleveland.—It is not necessary for me to inform you that one of the difficulties in securing these inlays is to get a strong attachment.

Doctor Land, in a presentation before one of the societies, has spoken of a fluid which is to be put into the cavity previous to the cement, but he does not tell us what it is; what it is composed of. Doctor Ames does. He also says in this paper that it is not necessary to use the phosphoric acid if you take the cement while it is very thin and use a very thin film of that over the surface. I think in the use of these cements, that by taking a very thin mix and then forcing in that which has been mixed so that it is as stiff as you can handle it, and by using pressure, the best results are attained.

The atmospheric conditions are not always the same and one may be just as careful in spatulating, as Doctor Ames talks about, yet there will be slight variations, and the result in the filling or in the mass when it is hard or set, is a very considerable difference. To overcome some of the difference, I have adopted the plan of putting it in under pressure. For instance, introduce a thin piece of ribbon steel, carefully bending it and holding it as tight as you can so as to get pressure on the mass. I think you will find a better surface and a better mass under that kind of manipulation.

QUESTION.—Since this idea of moistening the cavity has been presented, it has occurred to me that creosote would be better to use than water, and I have used it, without knowing whether I am right or not, and would like to know if any others have used it. The creosote very soon disappears. Of course it makes the entire surface of the cavity very susceptible and is almost invisible, whereas water shows a difference. Would

like to ask if creosote is not preferable to water? Will it have any effect upon acid in cement?

DOCTOR AMES.—I hope I did not convey the idea that when the cement is applied to the surface that there is any visible water or anything else. The point I want to make is that there shall be no desiccation of the tooth. I just want the tooth normally moist as it will be after the filling is in. As to whether water or creosote is better, I would not want to answer positively, but my preference would be for the water, because of the combinations you get between phosphoric acid and some of those acids. I would not want to use carbolic acid. Without wanting to advance an opinion on the subject, I would say that I prefer to avoid any such thing as carbolic acid or creosote. I would prefer to have that tooth partially or normally moist. I do want to disabuse anybody's mind of the idea that I am advocating flowing cement to a surface that is visibly moist.

DR. H. L. AMBLER, Cleveland.—There has been some trouble, I know, among a great many of the profession, in trying to make cements stick to certain surfaces. I think the majority can make cement adhere to a fairly rough surface, and if there is any kind of a cavity in the tooth I am sure it is easy enough to make cement stick there. The greatest difficulty I have found in making cement adhere is in cases of erosion, where there are those smooth and polished places on the tooth. I have tried a good many ways where I did not wish to cut them out. I had one case where I made a good many of those fillings and none of them have done very well. The first idea was to dry them off with alcohol and hot air and then apply the cement, mixed as usual for filling. That did not work. Then I tried varnishing them and that did not work; that is, they only stayed for a short time. I tried four different kinds of cement. None of them was a success, and I had to fill the same cavity over and over. I then tried mixing up a very little cement very thin, drying off the surface of the tooth fairly well with a little cotton and alcohol, then just touching it with the thin material, making another mix as quick as I could and putting that on, and this stayed the best of any. But I did not have success with them and afterward abandoned that idea. I think, perhaps, if I had carried it further and touched the surface with the fluid that comes with the cement and then made a proper mix of my cement, it would have adhered. I presume that what Doctor Ames says about adhering of cement to dentine, is all right and I am going to try his method of making cement adhere in some of these cases of erosion. I believe we have, as a rule, tried to make the surface of the tooth as dry as possible. I do not know as any one has made an experiment to tell how deep you can dry the tooth with hot air. I know that we have clamps for putting rubber on the roots and I think the idea of all of us has been that you must get the tooth dry and keep it dry. If cement will adhere and won't dissolve out, you have something very desirable.

DOCTOR AMES, Chicago.—I consider this subject essentially a question of adhesion of cement to dentine and porcelain in connection with the sub-

ject of porcelain inlays. We understand that the matter of adhesion to dentine is simple enough in the cavity of any form and where we can properly roughen the surface. The difficulty is in those inlays which present a plain surface. In such cases I should consider that the adhesion of cement properly used to the dentine is a serious matter, but I think we can so treat the inlay that if the inlay should come away the cement will be adhering to the inlay instead of the dentine. The condition spoken of by Doctor Ambler, that of erosion, of course, presents the most difficult aspect of adhesion to dentine, because it has been so exposed to conditions that there has probably been an extra calcinization there. If we can slightly roughen the surface I would suggest applying hydrochloric acid. I would expect that to be one valuable method in such a case.

In speaking of the proper mix of cement I do not mean to convey the idea that the thick or thin mix essentially would have greater adhesion to the dentine. To make that plain I would simply say what I consider a proper cement for inlay or ground, is to mix the cement as stiff as you can and get it to place. By not having the surface desiccated you can use it stiffer than if desiccated.

SOME THINGS I HAVE LEARNED ABOUT CROWN AND BRIDGE-WORK.*

BY DR. W. O. SPEITH, WARREN, OHIO.

I wish to impress upon you that I do not even hope to show you anything new, but simply to bring before you the points that are placed most forward in my mind, after my short practice, which should be observed in forming a bridge that will produce the least irritation, the most strength, and at the same time the most under one's control while soldering. When I was preparing myself to practice dentistry, I somehow got the idea that we were to scrape our models a little where the dummies come in contact with them, but at present I believe we should not only refrain from scraping the models, but that we should grind the dummies so they do not quite touch the gum.

If this is observed, I find there will be but very little irritation produced. I carve the occlusal surface of the dummies, as well as the crowns; for example, take a bridge from the superior cuspid to the second molar; I form the abutment crowns the same as usual and after placing on articulator, grind facings and back with 24-k. gold or platinum, then wax to place, using

*Presented at Northern Ohio Dental Society, June, 1904.

an extra tough wax. I use consolidated extra tough base-plate wax, and build it out on the lingual as far as I intend the occlusal to extend, leaving a space on occlusal to receive a little plaster, place separating fluid on occluding teeth and make retaining holes in wax so plaster will remain firm, then put plaster in place and place articulator together. When plaster has hardened, separate and carve occlusal of all dummies in one piece. After this is done, take dummies from model all together, make die and counter-die of Melott's metal and swage occlusal. This must be done thoroughly, swaging several times, using lead on top of gold between die and counter-die. Do not swage die and counter-die together, as this will make occlusal surface too large. Wax this occlusal on model to facings, then separate occlusal and facings from model, invest and solder with 20-k. gold.

Now we have dummies all in one piece; carefully grind them so they will not quite touch the gum, polish, wax to abutment crowns, invest and solder. I think this is more liable to give us a strong bridge, because it gives us better control in soldering, as we have but two joints to solder together in the majority of cases.





TO CLEAN CEMENT SLABS.

To remove hardened cement from cement slabs, rub slab and cement with aqua ammonia. The cement is readily removed by this and then the slab can be cleaned by washing.

TO PREVENT AN ENGINE CORD FROM SLIPPING.

R. M. Pearce, Rock Island, Ill.

A little beeswax and resin applied to the engine cord will prevent it from slipping. Try this the next time you are without a rubber rim.—*Dental Review*.

QUICK PICKLE.

Oliver Martin.

Place work in a glass and nearly cover with hot water. Pour in as much pure sulphuric acid as you have water and by this time your piece will be clean.—*Dental Review*

COVER FOR OPERATING-TABLE.

G. A. Maxfield, Holyoke, N. J.

I use for my operating-table a cardboard cover glazed on both sides. After the first patient this is turned over, and after the next it is discarded, and a new board placed on the table. I have these boards cut to the size I wish, and find them very inexpensive, as they cost only about fifty or sixty cents a hundred. By the use of them I am assured of a clean surface on which to lay the instruments.—*Dental Cosmos*.

PREPARING SENSITIVE LABIAL OR BUCCAL CAVITIES.**J. N. Platt, Gallup, N. M.**

Erosions at the gum margins can be prepared for the insertion of fillings with little pain to patient by applying dry tannic acid instead of adding glycerin to it. This will not produce any bad after-effects.—*Dental Review*.

METHOD OF REMOVING A MATRIX.**W. O. Fellman, Oak Park, Ill.**

After the matrix has been burnished to fit the cavity perfectly, flow hard, sticky wax into it while in place, and then heat a small ball burnisher, sink it into the wax and chill with cold water. The matrix can now be lifted from the cavity without destroying it.—*Dental Review*.

BACKING FACINGS.**Doctor Cooper.**

The plan I have followed is to first burnish thin 24-k. gold to the facing, and upon this place a piece of 34 gauge, 22-k. gold, which, after bending the pins down, by its greater stiffness holds the first backing securely to the facing, insuring a close adaptation.—*Texas Dental Journal*.

REQUISITE FOR PERMANENCE IN FILLINGS.**C. N. Johnson, Chicago.**

Another requisite for permanence is that fillings shall have sufficient bulk for strength, particularly at points which are subjected to heavy strain. In cutting a proximo-occlusal cavity, the step should be made deep and wide enough to give appreciable bulk of filling material at the point where the proximal portion joins the occlusal portion, otherwise the filling may break at this point, allowing the proximal half of the filling to tip away from the cavity and admit a leak.—*Dental Review*.

CORRESPONDENCE

THE WISCONSIN DENTAL LAW DISCUSSED.

To the Editor of The Dental Summary.

Sir:—I have the honor to request space in your journal for some remarks regarding the Wisconsin dental law in its present form, and to set forth some argument thereon:

I shall first quote the section in question, as follows:

"Section 4. * * * * * The State Board of Dental Examiners may, in its discretion, except as otherwise provided in this section, license without examination, *only* a regular graduate of a duly incorporated, *and, in the judgment of the Board*, reputable dental college, in which the applicant shall have pursued *four full courses of lectures of at least seven months each*, and which *requires* for admission thereto a preliminary education equivalent to that required for entrance to the junior class of an accredited high school, or a graduate from such college who having attended the last full course in the college issuing the diploma, shall have received his dental education, prior to said last course, in a dental college having an equal *standard* as to course of study and preliminary requirements. Any regular graduate of a duly incorporated, and, in the judgment of the Board, reputable dental college, and any person who shall have been regularly engaged in the reputable practice of dentistry consecutively for four years immediately preceding his application for examination, or any person who has served as an apprentice to a dentist engaged in the reputable practice of dentistry, for a period of five years, who may desire a license to practice dentistry in this State, *may* appear before the State Board of Dental Examiners at any regular meeting and *be examined in reference to his knowledge and skill in dental surgery.*

"If such examination shall prove *satisfactory to said Board*, the Board shall issue to such person a license to practice dentistry in this State, in accordance with the provisions of this chapter. * * * * * Said Board shall, however, license, without examination, any regular graduate of a regularly incorporated, and, in the judgment of the Board, reputable dental college of this State, who shall be at the time of the passage of this act, a regularly matriculated student, in regular and constant attendance upon the classes of such college, and who shall continue such attendance, taking the full prescribed course until his graduation."

A careful analysis of this law brings forth some pertinent questions as to the intended rights and authorization of State Board of Examiners, one of which I might say is: are they to be the sole custodians of what shall be considered requisite courses of study for dental colleges, length of terms, etc?

If they have the right to dictate the length of terms, why not the studies themselves? Again, if they have the right to differentiate in examinations of the graduates of their own State colleges as against those of other States, cannot that right, at their discretion, be extended to only such colleges as they may see fit to allow these special advantages in other States?

Again, if this be a right of, or left to the discretion of, State Boards of Dental Examiners, what hope has the profession to look forward for a unification of State laws governing the practice of dentistry or to a uniform standard of dental education?

Then again, is this not an open effort to force the dental colleges to a four-year course of instruction regardless of what the educational forces of the country consider requisite and proper?

There is nothing in the act defining a standard, so that it is purely a matter of discretion with the Board of Examiners to fix the standard to suit themselves. Either the State of Wisconsin possesses a standard of qualification for license to practice or it does not; and if it does possess a standard of qualification, it will maintain that standard or it will not according to the individual makeup of the members of that Board from year to year. There is no provision making it necessary for them to satisfy any one else who may be a party at interest, or to satisfy the public and the dental profession, who are, after all, the real parties in interest in all of these cases. With no specifications as to standard defined in the law, no provisions for a public record of its acts, and conferring upon the Board unlimited power to satisfy itself and nobody else, the act is one under which uniformity of standard is practically impossible, and there is no guarantee that with the changing personnel of the Board the standard may not be subject to changes toward the extremes of insufficiency on the one hand or of impracticability on the other. For these reasons, discretionary power in the matter of standards is objectionable, as it leads to abuses and injustice, and should be eliminated from our dental statutes as far as possible. Acts

should be specific and clear, and set forth the standard of qualification in detail—which the law of the State of Wisconsin does not do, and in our opinion it is, therefore, defective.

What does a "standard of education" consist of anyway? Length of course of study, or knowledge itself? Is there any reason to expect a greater or better knowledge from a course of twenty-eight months divided into four parts, than there is in a course of twenty-one months divided into three parts, especially as the original "four-year course" was to consist of twenty-two months actual teaching and the three-year course adopted at St. Louis to give twenty-one months actual teaching.

This matter of State dental laws is one in which the entire dental profession is vitally interested and it is high time that it be taken into the confidence of those who are assuming all the powers of legislation and that the interests of the profession as a whole and not that of the favored few be considered in such legislation. Doctor Chittenden, who evidently was sponsor for the law of his State, judging from his speech at the American Medical Association, his various papers upon the subject of dental education and the stand he took at the late meeting of the National Association of Dental Examiners as chairman of the Committee on Colleges, and the report of this Committee published to the profession, it must consist of what he deems the "acme of perfection" of this class of legislation. He is the "head and fount" of the "high standard" advocates, and after he has accomplished all that he advocated, we find he has but given us one of those "various laws" with which the profession has been afflicted for the past twenty years. We find no more, if not less, "standard" in the law of his creation, than that of the "various laws" of the other States. He merely assumes to grant the favor of admitting to practice "*without examination*" graduates of colleges which adopt a course of four years or twenty-eight months "*at the discretion of his Board.*" This may be what he terms "reciprocity," but as there are no colleges in which a four-year course is taught, and what is more, not likely to be for some time to come, he has placed his State in the position it cannot have "reciprocity" with any other State in the Union. As he has no "standard" that would be recognized by the Boards of New York, Pennsylvania or Massachusetts, he has placed his Board where it cannot even grant or receive "reciprocity" with any of

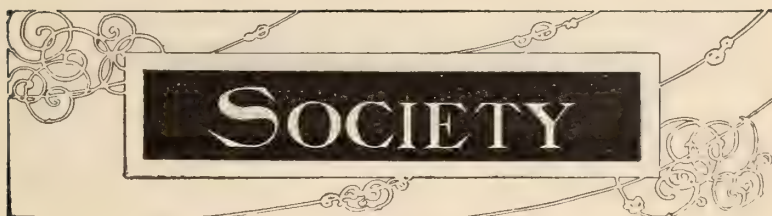
the others. What is worse yet, he has a law so worded that should a Board be made of men so inclined to interpret it, would compel all graduates of any State, except Wisconsin, to remain four years in practice after graduation before being allowed to come up for examination before the Board. The use of the word "*and*" instead of "*or*," does not appear to be serious on its face, but that depends upon the composition of the membership of the Board. Judging from some interpretations put upon some State laws by Boards of the present as well as the past the worst and not the least could be expected.

Of course we understand that the gentleman did not foresee the "turn-table action" of the Faculties Association. I have sincere hopes, now that the inevitable has happened, that the members of the dental profession will wake up from their "Rip Van Winkle" sleep of the last twenty years, and take hold and assert their rights and demand recognition in the framing of the legislation which governs their existence. The National Dental Association is the proper place to assert their power, and it should be looked to that delegates from their Societies sent to the National are not of or controlled by the Boards of Examiners or their Association. Let the State Societies set aside a day for debate upon this important question, and then vote their minds as to what they do or do not want. Let it be understood when this meeting is to be held, where, and what for and this question can soon be settled with honor to the profession.

EMORY A. BRYANT.

1320 New York Ave., Washington, D. C.





INDIANA STATE BOARD OF DENTAL EXAMINERS.

Meets at State Capitol, Indianapolis, January 10, 1905. Applicants for examination must possess a diploma from a recognized dental college or have been in the office of a reputable dentist of this State not less than five years. All applications should be filed with the Secretary not later than January 5, 1905. For further information, address,

F. R. HENSHAW, *Sec'y.*

Middletown, Indiana.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates for license to practice dentistry in Wisconsin will be held in Milwaukee, January 30, 1905.

Application must be made to the Secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry consecutively for four years, or an apprentice to a dentist engaged in the reputable practice of dentistry for five years.

For further particulars apply to

J. J. WRIGHT, *Sec'y.*

1218 Wells Bldg., Milwaukee, Wis.



AFTERMATH

PERSONAL AND MISCELLANY.

Stricken with Paralysis.—Dr. L. C. Wasson, Topeka, Kan., was stricken with paralysis November 27th.

Two-thirds Failed.—Out of twenty-one applicants for license at the recent meeting of the Washington State Dental Board Examination, only seven passed successfully.

What Daniel Said.—Daniel Webster once said: "Wherever there is work for the hands there is work for the teeth." Daniel was probably reaching for the dentist vote at the time.

Consoling.—Pallid Sufferer—"Does pulling a front tooth like this one of mine hurt much?"

Husky Dentist.—"Not a bit! I never sprained my arm over anything but a molar."

Death Results from Swallowing Teeth.—Roche Paquin, Fall River, Mass., who swallowed his false teeth while attending the performance at the Bijou theatre Thanksgiving day, died at Dr. Aldrich's hospital December 4th.

State Board Secretary Dead.—Dr. D. L. Stein, one of the prominent dentists of Indianapolis, Ind., and Secretary of the Indiana State Board of Dental Examiners, died from appendicitis December 7th.

Dentist Loses Suit.—Mrs. Anna Pickering sued Dr. M. M. Keep, a dentist of Bellefontaine, O., claiming that because she still owed \$3 on a set of false teeth, the doctor took them out of her mouth and kept them for security. The jury gave her \$125.

Ohio State Dental Society Officers.—At the meeting held in Columbus, December 6th-8th, the following officers were elected: President, Dr. S. D. Ruggles, Portsmouth; first vice-president, Dr. H. L. Ambler, Cleveland; second vice-president, Dr. H. C. Brown, Columbus; secretary, Dr. F. R. Chapman, Columbus; treasurer, Dr. C. I. Keely, Hamilton. Directors elected for three years: Drs. C. R. Butler, L. L. Barber, W. B. McConkey, C. R. Converse.

Burglaries.—Dr. C. Steinmetz, Kansas City, Mo., loss by theft, November 27th, \$75. Dr. W. E. Cutler, Chanute, Kan., November 18th, loss \$50 worth of gold and scrap. Dr. J. W. Smith, Rock Island, Ill., loss \$100. Dr. G. J. Mead, Erie, Pa., loss \$50. Dr. M. Strauss, Huntington, Ind., loss \$50.

Sentenced for Burglary.—James Wylie, who has been known to the police of all American cities for the past twenty years, was sentenced to the Ohio penitentiary for six years by Judge Belden, for the burglary of Dr. J. B. Stewart's dental office, Hamilton, Ohio. He got nothing.

Fined for Extracting the Wrong Tooth.—Judgment to the amount of \$250 was given November 18th, at Nashville, Tenn., by Justice Jake Levine against the Painless Dental Co., for personal damages due to the extraction of the wrong tooth. Orville Ewing was the prosecutor. He sued for \$500.

Wanted to be Treated with More Respect.—"The trouble," said the dentist, as he probed away at the aching molar with a long, slender instrument, "is evidently due to a dying nerve."

"Well," groaned the victim, "it's up to you to treat the dying with a little more respect."

The Odontological Society of Salt Lake City, Utah, at its regular meeting elected the following officers for the ensuing year: President, A. C. Wherry; first vice-president, W. L. Ellerbeck; second vice-president, C. W. Gates; secretary and librarian, F. W. Meakin. A vacancy on the board of censors was filled by E. Van Cott.

New Dental Society.—A new dental association known as the Central Missouri District Dental association was organized at Sedalia, Mo., November 22d. It is composed of fifty dentists from Pettis and surrounding counties. Dr. F. M. Fulkerson, of Sedalia, was elected president of the new association. After the election a banquet was held.

Vermont State Board of Dental Examiners.—The newly appointed Dental Examining Board is as follows: Geo. F. Cheney, D. D. S., St. Johnsbury, five years; K. Longfellow Cleaves, D. D. S., Montpelier, four years; Luther E. Mellen, D. D. S., Middlebury, three years; E. O. Blanchard, D. D. S., Randolph, two years; J. Holmes Jackson, D. D. S., Burlington, one year.

Defective Teeth Spread Infective Germs.—Walter Whitehead, the well-known Manchester surgeon, believes it possible that cancer may be due to bad teeth. Addressing the students of the Victoria Dental hospital on Monday night, he said that to drain, trap, and ventilate a house for a man with bad teeth was a waste of money, for he polluted the purest air as he breathed it, and contaminated the most wholesome food as he ate it.

Died.—Dr. R. C. Corbus, Hull, Ia., died November 29th. Dr. W. A. Drowne, aged 51, died at El Paso, Tex., November 29th. Dr. Geo. Smith, Redbank, S. C., died November 16th. Dr. R. J. Stevens, Canon City, Col., died November 30th. Dr. E. H. Brock, aged 56, died in Lynn, Mass., December 5th, cause of death, paralysis. Dr. M. D. Thurston, Spokane, Wash., died from the effects of appendicitis, November 18th.

President Jokes About His Teeth.—President Roosevelt cracked a joke recently at the dentist's concerning his teeth, which the cartoonists are so fond of making the largest part of his likenesses. After he had finished, the dentist asked solicitously if he had handled the presidential molars roughly.

"No, you have not treated them one-half so badly as have some cartoonists I could mention by name," replied the president.—Washington Star.

Fires.—A. C. Clark & Co., dental supplies, Chicago, lost by fire, November 23rd, \$10,000 worth of supplies; fully insured. Dr. H. S. Barber, Brooklyn, N. Y., November 15th, loss \$1,000. Dr. B. F. Hall, Asheville, N. C., November 20th, loss about \$1,500. Dr. W. P. Thomas, San Antonio, Tex., loss \$1,200; insurance, \$400. Dr. B. W. Jones, Troy, O., no insurance; total loss. The explosion of a can of gasoline in a dentist's office started a dangerous fire in Perrysburg, O. Three business houses were burned and two offices. Loss \$20,000.

Marriages.—Dr. B. E. Oberman, Des Moines, Ia., to Miss Ada Heist, Cleveland, O., November 23d. Dr. J. C. Fleming, Osseo, Wis., to Miss Mabelle Balliet, Mansfield, O., December 3d. Dr. O. H. Cressler, North Platte, Neb., to Miss Clara Will, Omaha. Dr. H. Mateer, Rochester, N. Y., to Miss Frances Waldert, December 6th. Dr. T. J. Holland, Manchester, N. H., to Miss Anna Griffin, of Manchester. Dr. L. H. Babcock, Canisteo, N. Y., to Miss Mary Baird, Hornellsville, N. Y., November 15th. Dr. J. C. Hall, Bradner, O., to Miss Mildred Wheeler, Bryan, O.

Prehistoric Dentistry.—W. C. Mills, curator of the archaeological society, has made a discovery which is sure to attract attention among archaeologists. In examining a human jaw-bone found last summer near Chillicothe, Ohio, he found that the three central teeth, which appeared to be those of a human being, were those of a deer, which had been cut and shaped for insertion in the jaw. Professor Mills' theory is that the jaw was worn as an ornament, and that the teeth were inserted to add to its appearance as an ornament. The jaw was found, together with some copper ornaments, near a heap of cremated bones.

A Pleased Patient.—There's not much comfort in a name. Your patient doesn't care whether it's a cavity, an exposed nerve, or an abscessed tooth. If there's pain, that's enough for the patient. And

if there are Antikamnia & Codeine Tablets, that's enough for the dentist. Pain is often all there is to it. Stop the pain and you please the patient. Dentists when operating should administer one Antikamnia & Codeine Tablet every hour, giving one shortly before beginning the operation. One tablet before and one after extracting a tooth, will prevent the severe pain and consequent nervousness. Facial neuralgia, toothache and earache can be easily relieved with one tablet every hour or two.—A. C.

Rewarded for Kind Service.—Dr. C. A. Flower, a dentist of Kittanning, Penn., visited the World's Fair in Chicago in 1893. While strolling along the "Streets of Cairo" on the Midway he saw one of the members of the Bedouin village badly hurt by a camel, which crushed one of his feet. Dr. Flower aided the injured boy as much as he could, dressed the bruised foot and applying to it a laudanum lotion, which relieved his suffering. The natives seemed greatly impressed and wanted to pay for the service, which was promptly declined, and Dr. Flower soon forgot the incident. It was recalled to him by a personal which appeared in *The Dispatch* of Saturday, November 12th. A few days afterward Dr. Flower went to St. Louis to the Fair, and upon reaching the India concession he was warmly greeted by some of the men whom he had met eleven years before. In behalf of the boy whom he had aided they presented him with a gold-bronzed Egyptian friendship cup, said to be very old; shawls of the finest design and texture and antique jewelry of great value. The lad who was hurt in 1893, they told Dr. Flower, had become a Sheik, and consequently was unable to leave the Far East, but they were bidden to carry out his wishes. Dr. Flower spent some time with his dark-skinned friends and was by them initiated into some of the mysteries of the band. One of the degrees was administered at midnight with impressive secrecy, after which he was decorated with the title, "Son of the Sphinx," a distinction said by the natives never before to have been given to a white man.

More Dental Surgeons Needed in the Army.—The short experience of dentistry in the army has, according to reports received by Surgeon-General O'Reilley, demonstrated that several things are yet needed in that branch of the service to bring it up to the desired standard of efficiency. The most pressing needs are represented to be an increase in the number of dental surgeons, a suitable operating-room at each post and some means of inducing enlisted men to give proper attention to the personal care of their teeth. These suggestions are cordially approved by several department commanders, including General Grant, commanding the department of Texas. General Grant says that he will require the dental surgeons in his department to deliver short and instructive lectures to the soldiers on the care and preservation of the teeth. "This," he says, "would be in keeping with the general method adopted by the medical department for instructions in first aid which have proven most useful and practical

auxiliaries for the welfare of military commands." He quotes as follows from a report made to him by one of the dental surgeons in his department: "The result of my experience here and elsewhere in the department forces me to the conclusion that under the most favorable conditions it is not possible for one dental surgeon to perform more than fifty per cent. of the work required. One of the greatest drawbacks connected with the service is the fact that very few enlisted men know anything about personal care of teeth, and care less, and, if I can judge from appearances, it seems to be no one's business to see that they own and use a tooth-brush. It seems useless to state that a dentist cannot take the place of a tooth-brush."

Recent Patents of Interest to Dentists.—

774253—Tooth cleaner, James E. Keefe, Chicago, Ill.

774045—Artificial tooth, Charles A. Davis, Pasadena, Cal.

772907—Dental draw-press, Herman E. Reynolds, Buffalo, N. Y.

774816—Matrix-band retainer, Lisle H. Babcock, Canisteo, N. Y.

773570—Tooth-pick machine, Wm. F. Hutchinson, Nyack, N. Y.

775083—Clasp for dental dams, James W. Ivory, Philadelphia, Pa.

774185—Tooth-powder canister, Achilles de Khotinsky, Chicago, Illinois.

774879—Instrument holder for dentists, Wm. G. Hullhorst, Toledo, Ohio.

774838—Dental tooth-pin pointing tool, Leon H. C. de Fernelmont, Philadelphia, Pa.

12277—Reissue, Dental preparation for capping pulps, Abram L. Bower, Boyerstown, Pa.

Copies of above patent may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

Appreciate The Dental Summary.—

"Please accept my check for one dollar for The Dental Summary. I can hardly do business without it."—E. S. Marvin, Berne, Can.

"Send The Dental Summary again one year. I enjoy reading it. It is well worth the money."—J. B. Everett, Lexington, N. C.

"I enclose one dollar for The Dental Summary. Will you please continue sending The Summary when subscription expires, for I don't care to be without it. I need it in my business."—J. R. Osborne, Shelby, N. C.

"Enclosed find check for two dollars for two years payment of The Dental Summary, which I appreciate very highly. The Dental Summary has but few equals and no superiors."—W. H. Tillinghast, Providence, R. I.

REGULAR CONTRIBUTIONS

THE APPLICATION OF THE STEREOSCOPE TO THE STUDY OF DENTAL SKIAGRAPHS.

BY E. BALLARD LODGE, D. D. S., CLEVELAND, OHIO.

The discovery of the Roentgen rays was soon followed by their application to the fluoroscope for viewing anatomical structures, and shortly the use of photographic plates followed, but a third agency is now made use of for the examination of X-ray pictures by their use with the stereoscope.

If a lead-pencil of six sides be held perpendicularly before the eyes at a distance of eight or ten inches, with two of its surfaces equally before the observer, and having the right eye closed, one will see not only the above-mentioned two surfaces, but a third surface may also be seen on the left side of the pencil. Again, if one will hold the pencil as before, and close the left eye, he may see the two surfaces as stated above and also another surface still farther to the right. Opening both eyes, one holding the pencil as before will be able to see the four sides at the same time. It is because of these facts that we have conveyed to the mind the idea of solidity or form, and it is because of these phenomena that the stereoscope is possible.

If, now, two nearly similar photographs are so related upon a card that, when viewed through a stereoscope, their images blend, we get the idea of solidity, form or relief, to correspond with the phenomena of binocular vision.

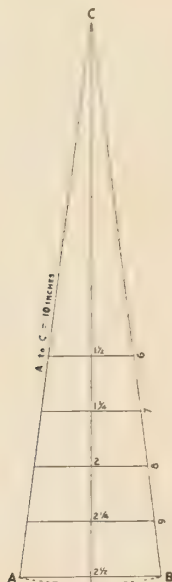
Skiagraphs or X-ray shadow photographs can, like ordinary photographs, be so made as to yield a like result when observed through the stereoscope.

The means of obtaining stereoscopic dental skiagraphs is very simple and is as follows:

Remembering that the Roentgen rays are projected in straight

lines from the anode of the Crook's tube, it is merely necessary to make two exposures at two fixed and definite angles upon two separate plates or films, the object to be skiagraphed being kept in the same position for both exposures. And while it is impracticable to be as accurate as a surveyor with a transit, still approximate accuracy may be attained, and anything less would be unscientific.

Referring to the diagram, we have an isosceles triangle, ABC. The base-line AB represents the distance apart of the eyes, and the point C will represent the object to be skiagraphed.



The base-line AB should not be less than the distance between the eyes, although it may be somewhat less, provided the anode of the tube is placed nearer the object, as per the diagram.

The writer has devised a system of measurements whereby the angles at A and B always remain the same, whether the anode of the tube be ten inches from the object, or nine inches, or whatever distance. For example, if the object is ten inches distant from the anode of the tube, then the base-line will be two and one-half inches, or the distance the eyes are apart; and if the object is nine inches the base-line will be two and one-quarter

inches to maintain the same angles as were employed when the object was ten inches distant.

In practice this is employed by having a scale upon the table upon which the tube-stand is placed, and upon which the tube-stand may be slid back and forth. The distance of the object being decided upon in a given case, we now place the tube-stand upon the scale at the required distance and make an exposure as at angle A in the figure. This being done and without the patient moving the head, the tube is moved to the end of the scale or to zero and a second exposure is made upon a second plate or film.

We now will have two pictures nearly similar and yet differing, because of the difference in the point of incidence.

These pictures, when mounted upon a card and in apposition,



will show the teeth and neighboring anatomical parts in bold relief.

The method of mounting dental X-ray pictures is as follows: The card for an ordinary stereoscope should be about seven inches in length by three in width. One of the prints is pasted upon the center of one-half of the card in the stereoscope and in focus, the second picture being previously armed with a little paste upon its back, is carefully slid into its proper position.

This application of dental skiagraphs is very satisfactory indeed, as it shows the relation of the part in a way that a mere flat picture could not possibly do.

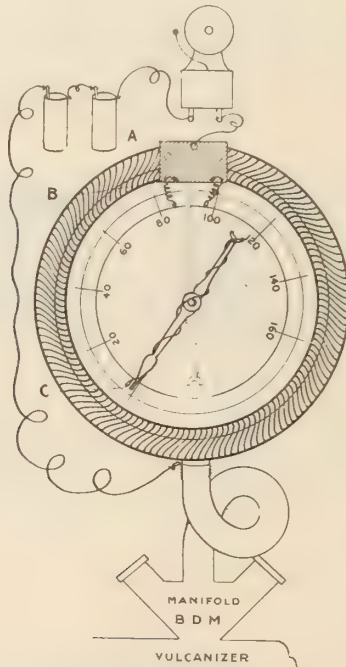
We have here, then, an aid to our various means for diagnosis of surgical cases in that very familiar instrument, the stereoscope.

THE DENTAL SUMMARY. A VULCANIZER ALARM.

BY DR. F. A. GRAHAM, HARBOR SPRINGS, MICHIGAN.

This device may be helpful to those who, like myself, do not have gas with automatic regulator in the laboratory, and find it easy to forget the vulcanizer when busy.

The cost was as follows: A cheap iron-cased steam-gauge, \$1.25; machinist's charge for bending siphon pipe and making connections, 50 cents; batteries, bell, wire, etc., \$1.00.



A—Brass-plate, insulated from gauge by wood block and sealing-wax.

B—These fine brass wires do not touch gauge.

C—Fine copper wire, twisted around iron needle to make better electrical connection with gauge. (Glass face is removed from gauge).

The drawing explains itself, the current traveling from the brass pipe on the gauge up through the brass works and into the copper wire on the needle, which, when it swings far enough to touch either of the fine brass wires insulated from the top of the vulcanizer, completes the circuit and rings the bell.

The fine wires are easily adjusted by bending, allowing the needle to just touch the first one as it goes by, but not to pass

the upper one, which is the danger alarm. After the needle is once between the contacts an alarm is given if the pressure gets either too high or too low.

It is practical and is working perfectly for me.

PROFESSIONAL EMANCIPATION AND HOW IT MAY BE EFFECTED.*

BY J. E. WEIRICK, D. D. S., ST. PAUL, MINNESOTA.

It is with a deep sense of appreciation that I am taking advantage of your k'nd invitation to deliver an address at this meeting. If I had my just deserts, I would be begging at the back door of your hall for permission to appear hear in the role of a penitent. That I am, instead, honored with the freedom of the floor and the privileges of a speaker denotes your generous spirit, and is another demonstration of that fine broad character for which Indianapolis and her people have long been famous among those who have enjoyed the boon of your friendship and hospitality. But even *your* indulgence must have been tested in my case. For I plead guilty to having outraged your kindness last year when, after accepting an invitation to attend the annual meeting here, I failed at the last minute and that without warning or advance notice. I know of *nothing* that has come to me *so pleasantly* as the renewal of your invitation this year, showing that you had fully forgiven my trespass. I will not try your patience with an explanation of my non-appearance at the last convention, except to say that it was caused by an entirely unexpected professional matter, that pressed on me so urgently I could not get away from St. Paul, though you may rest assured I would have hesitated at *no possible sacrifice* to fill my engagement with you. Instead, then, of offering a long explanation, I will try to show my appreciation of your forbearance by making my address here as *short* and *sharp* and pointed as possible; wasting as little of your time as may be. If you find some of the things I say *blunt* and *undiplomatic* and crudely put, please ascribe it to the desire on my part to use as few words as possible. And this request leads naturally to the main idea on which I have

*Read before the Indiana State Dental Society, June, 1904.

taken the liberty to base my address—that we dentists at our meetings and conventions are entirely too prone to waste our time in bootless talk and impractical action; that we generally come to these gatherings with a bag of wind under one arm and a keg of water under the other; varying the program only occasionally, by carrying something other than water in the keg.

True, we are no greater sinners in this respect than many of our fellows in the other professions. But there is this difference: They can afford to indulge in a harvest of wind. We cannot. Their status is established. Ours is not. They have a professional ancestry. We, as yet, have only a professional progeny. They stand on a solid foundation built for them by their pioneers. We have our foundation still to build, or at least to make solid; and we are not doing it. Instead, we are drifting along in a haphazard way, deceived by the crumbs of recognition thrown us here and there into the belief that we have really arrived; that we are really and broadly ranked with the other learned professions. As a matter of fact, we are not. The more clearly we understand this, the better. For, with such an understanding will come properly directed work, concerted effort, and the measure of achievement that will give us the *substance* of that *high standing*, of which we have now but the *shadow*. At least, I *believe* that this will be so; that we have but to make clear to ourselves and our associates the ambiguous position we occupy, in order to bring about a condition of affairs that will make *any* man proud of the fact that he belongs to this profession. Indeed, I believe it only necessary that we wake up to our *true situation*, to insure our becoming leaders instead of followers in the world's division of medicine and healing. We have but to look back over the history of our progress so far, to make very clear the potential possibilities of our craft. Hampered by the most *serious disabilities*, disabilities that I will refer to in detail with your permission, we have yet to record the most extraordinary progress. Let us overcome these disabilities, and we will at once take proper rank, and win that professional standing which it must be the aim and desire of every properly constituted man to have *for his own*.

It is true, undoubtedly, that even with the progress we are making to-day, we will eventually arrive. The things that we have done demonstrate this clearly enough; but they demonstrate,

also, that we are still *far* from the goal, and that as matters are *now* moving, it will be a generation, or even *two* generations, before we can fairly say that our profession is abreast in rank and consideration with the other sections of medical science. And for myself, that rate of progress is too slow. *I* am not content with the knowledge that the next generation of American dentists, or the one after will come into full recognition. *I* want this generation to see such a result.

I am tired of seeing the section of stomatology of the American Medical Association tagging perpetually at the rear end of the procession. I want to see this section on an equality in the councils of the association with the sections on ophthalmology, surgery and the others. I want to see an end to the condescension and the patronizing that are *always* extended to the practitioners in our profession by the members of the older branches of medicine.

It is unnecessary to point out to any one who has attended the meetings of the American Medical Association, the *humiliating position* that we always occupy. In our personal capacity, we are well enough. We have nothing to complain of at the social functions. But when it comes to a voice in the direction of affairs scientific, we find ourselves barely tolerated.

It is my firm belief that the work we are doing is as important as is the work in any other division of medicine. In numbers we are stronger than any of the other sections. There are to-day in the United States thirty-five thousand registered dentists. No other division of specialists can show within twenty thousand of that number. We have made relatively greater progress than any other branch. We have undoubtedly done more to ameliorate suffering than any equal number of men in the world. We play a most important part in the physical upbuilding of the race, by supplying and maintaining sound machinery for the mastication and consequently for the digestion of food. We have added more to the beauty of the human countenance, during the few years we have been at work, than have all the other agencies in the world before us.

Why, then, with such a record, do we still find ourselves at the foot of the ladder among the professions? The answer is to be found in ourselves; in the lack of properly directed effort, or rather in the lack of *thoughtful* effort. We are started wrong

from the moment we leave college, almost from the moment we enter college, and somehow we never do seem to get right. The taint of commercialism is on us from the very beginning, a *small, pitiful, petty* commercialism. We are yoked at the outset of our careers to a chariot that carries a company of mercenaries, and very few of us ever develop sufficient strength to throw off the yoke. Nor is this to be wondered at in the circumstances.

We all know that the boys who go into dental colleges are, for the most part, poor. They come from the farms, out of village stores, out of shops in the large cities, and, in a few instances, very few, out of colleges, with just about enough money to see them through the three or four years' course. They are almost *always* dependent on their own resources, and where their parents or relatives are in a position to help, they provide only sufficient funds to see them through to graduation. From that point the young fellow has his own way to make.

It may very properly be argued that a similar situation prevails in the other professions. But at the point of graduation there is this difference: The young medical student or lawyer goes out under healthy, normal conditions. The young dental student is met at the threshold of his professional life, by a band of men, who make it their business to put him at once in a mortgaged condition. I refer, as you are no doubt aware, to the agents of the dental supply houses. Under the present easy-going system, these agents are permitted to mingle freely with the students inside the college walls, to win their friendship and confidence, and to put themselves generally in a position where they may, at graduation, work the young man just as they please. And what is the result? The graduates are tempted into a business deal that leaves them for years, if not throughout their lives, hopelessly in debt. They are beguiled into buying equipment and supplies utterly beyond their means, and far in excess of their necessities. And *there* is laid the foundation of the evil condition that afflicts the entire profession. It is the beginning of the commercial domination that I believe to be the main source of our inability to rise to a level with the other professions. The college authorities, instead of combatting this situation, foster it, not because of any selfish or mercenary motive, but because of habit. It has always been so.

The supply people are clever, capable fellows, generally per-

sonal friends of the best men in the faculty, and no one dreams of interfering with them. It was the way when I went to college, and it will be the way when the generation still unborn go, unless we get together and put a stop to it, arousing the interest of the college officials, and making clear to them the need for reform. It is hopeless to look for relief to the supply people. With them it is business; and *good* business. Experience has taught them that it is a perfectly safe proceeding to trust every graduate who may be induced to buy. It is the same scheme that is worked in another form in the mining districts of Pennsylvania, in the plantation districts of the south, and in the milling districts of other States, where the "company store" grants unlimited credit, knowing full well that it has absolute security in the wages to be earned.

In *no profession*, except ours, does such a situation exist. I can quite conceive of what would happen to any firm, or corporation, or combination, that should attempt systematically to load down the graduate of a medical college with an unnecessary and uncalled for burden of debt, that should attempt to impose upon the inexperience and credulity of young men utterly incapable of judging for themselves of the conditions they will have to face in the working world. But in the dental colleges usage has not alone made this condition a matter of course, but the system has its beginning almost at the outset of the young man's career as a student.

It is my firm belief that the present unsatisfactory standing of the profession is, to a large extent, due to this false start. If the students we send out of our colleges were protected against loading themselves down with a wholly unnecessary outfit for which they mortgage, at least the beginning of their careers, matters would soon right themselves and that taint of commercialism, that to my mind is the greatest curse and the greatest handicap of the profession, would soon disappear.

As it is the young dentist starts out in life as the bond slave of the man or combination that has sold him his outfit, and he spends a large part of his professional career in an endeavor to get out of debt. For the most part this is a slow, up-hill struggle. In many instances it is a *hopeless* struggle, and the man *begins* and *ends* in debt. In any event, the task hardens the victim and obscures, if it does not wipe out entirely, the human-

itarian side of his nature. He looks upon his profession simply as a *money-making* machine, and he sells his services just as the grocer sells sugar and potatoes, and the butcher sells beef.

Only in *exceptional* cases, and with exceptional men, does a love of the profession survive this situation. For the most part the dentists gradually become merely distributing agents for the supply dealers and manufacturers, bent on getting as large a per centage as possible for their services in this direction. They become tradesmen in spirit, if not in fact, and the pitiful thing is that they must ever remain petty tradesmen, getting nothing like their just due, no matter how mercenary their spirits.

This condition crushes out the broad spirit that should characterize a true representative profession, and that does characterize *most* professions. The young physician and the young lawyer, whatever their hardships at the start or throughout life, realize, at least, that they are working for themselves and not for a master who holds a bond on their implements of trade, and who controls *every avenue of their activity*. This gives them time and inclination to look to higher and better things. *They* are not forever faced with the pecuniary and commercial side of their calling. They find themselves in a profession that is free and untrammelled and not dominated from beginning to the end, from roots to branches, by a commercial oligarchy.

We, who have become hardened to this condition, inured to the atmosphere, may not fully appreciate what an evil effect this commercial despotism has on us. We may not appreciate how far it goes toward making the difference in grade that lies between *other* profession and *ours*. But it is only necessary to examine calmly into the facts to arrive at a most convincing conclusion.

I suppose you all know that the great barbers' supply houses, and the big breweries have a system that is very much akin to that of the dental supply houses. They find likely men with a little money and fix them up for them establishments more or less elaborate upon which they take a mortgage. And thereafter the *barber* and the *saloonkeeper* are simply distributing agents for their masters, just as are the *dentist* for *theirs*, unless they have sufficient talent or shrewdness to pay themselves out of their clutches.

I confess that it is rather humiliating to find such a com-

parison in order. But the *facts force it upon us*. And, further, the facts show that this situation is by no means confined to the time of graduation, to the time when we enter our profession. So *habituated* do we become to the domination of the supply men, that we carry with us in happy comradeship throughout our careers.

In other professions, the men who make and sell the necessary tools, and *adjuncts*, one meets at their offices or they call at stated intervals to offer and push their wares. But with *us* they are at the *beginning* and at the *end*, the main thing. At our important conventions the choicest rooms and the most desirable quarters are pre-empted by the supply houses. The agents hob-nob with us, and thrust their hospitality upon us, and we are, apparently, glad to have them do so. *Can you imagine* a medical convention or lawyers' convention manipulated or controlled by implement and supply men?

I am aware that at the conventions of trade and commercial bodies the manufacturers' displays form one of the most important features. But *we* are *forever boasting* that we are *far* and away *above* trade and commercialism. We are forever striving for the elevation of our profession and for higher standards of dignity. *Yet*, wherever we meet in considerable numbers, we are fairly inundated with trade displays. The only difference in this respect between us and the trade convention is that where, for example, the hardware men are confronted with ice-cream freezers, snow-shovels and patent road-scrapers, and the plumbers' rooms are furnished with the newest styles of sanitary plumbing, we meet chisels, excavators, patent cuspidors and other cheerful instruments. *Mind*, I am not finding fault on personal grounds, either with the supply houses or their agents. I know many charming gentlemen and fine fellows in the business, men whom I am glad to meet at all proper times and on all proper occasions, as my friends. Men whom I am glad to have at my home and to whom I am happy to extend hospitality. But I *do* object to the spirit that it breeds, to the domination of our conventions and our actions by men who, if we asserted ourselves and valued ourselves as do other professions, would be very glad to remain in the background on these occasions when we are supposed to meet for the interchange of experience and opinion. The whole system should be torn up, root and branch, and *must*

be before we can attain to the *dignity and standing*, after which we are all so ardently striving.

A striking manifestation of what we are coming to, or rather what he *have* come to under this system of commercial control, is to be found in our literature. Look the field over and with one exception you do not find a dental journal that is not controlled by a supply house. And *brazenly* controlled. *No effort* is made at concealment. *There, on the cover of each paper*, you will find calmly set out that it is published by this supply house or that. And the editors are among the best known men in the profession. *"This is a condition that is not alone without parallel in the professions, but without parallel in trade."* I have mentioned this peculiarity to a number of friends who are engaged in trade journalism, and *without exception* they were filled with amazement. That we should have *not one widely read independent* influential paper of tone, dignity, and national standing, seemed to them an *impossible* situation. Yet, I confess, *on me*, this anomalous condition had never made impress, until I began to investigate it. And so, no doubt, it is with you. We have become *so habituated* to the existing condition, that the possibility of anything *better*, or *different*, has probably never suggested itself to us. All the other professions have a number of high-grade independent periodical publications to represent them. So far as I have been able to find, there is no trade *so lowly* that has not its independent mouthpiece. Only the *dental profession* must depend for its periodical literature on "house organs." Probably you do not know what a "house organ" is. It is a technical term applied in trade to publications issued in the interest of an individual firm or house, and such organs are looked on with scorn by the members of the trade. They have neither weight nor influence, but are frankly advertising devices. In the professions, other than ours, such publications are entirely unknown, or if they exist they have no standing or recognition. Nothing better helps to explain our situation, the backwardness of our professional rank, than the fact that practically all the publications supposedly devoted to our interests, to the promulgation of our science, are controlled by supply houses. *The standing of a profession is determined by its literature.* It was not until the English physicians were represented by the *Lancet* that they obtained recognition as a class. That the dentists of America in spite of the

manifest progress they have made, in spite of the really remarkable achievements that have been theirs, in spite of the fact that they number thirty-five thousand, have so little recognition to-day in the affairs of the American Medical Association, is due, no doubt, in large measure to the fact that the physicians have such standard publications as the *Medical Record*, *American Medicine*, the *Journal of the A. M. A.*, and half a dozen other periodicals to represent them, while we have nothing except house-organs that neither merit respect nor obtain it. Imagine the medical profession dependent for its literature upon a publication owned and edited by Johnson & Johnson, or by the owners of Listerine, or by Parke, Davis & Co., or by a jobbing house.

If we had a periodical literature of known independence, and high standing, a literature that would command *general respect* and *intelligent attention*, it would serve not only to stimulate the profession as a whole, but it would be certain to develop original research work, in which we are now woefully backward. No important research work has ever been accomplished in any division of science, unless it has had the active good will and co-operation of a considerable body of men. And this can only be brought about by the existence of a medium that is in a position to encourage and promulgate results. No section of medicine stands in greater need of the work of the intelligent investigator than ours. We have many problems to solve. In a dozen different directions we are groping in the dark, proceeding along lines where all is speculation, nothing fact. We know little or nothing of the causes of decay, or the causes of erosion, of the histologic structure of enamel. We need better filling material. We need substances to take the place of unsightly gold. We need light on the best methods of porcelain inlay. We need instruction and information on a *hundred* different subjects. We need better mechanical appliances, and, *above all*, we need a broader spirit, a spirit that will keep men who *perfect* such processes or appliances from running straight to the patent office with them. Such a broader spirit can be fostered only through a **broader literature.**

What do you suppose would happen to a physician in good standing who should perfect a new instrument or a new process, and straightway secure a patent that would restrict its use? He

would be *pilloried* in *his press*, and treated with *contempt* by his associates. But with us it is a matter of course that a man who finds a new way of doing things should at once take the commercial view and get out of it all he can. Have we not all of us seen reputable dentists buzzing about a convention, buttonholing their fellows to buy this thing or that, which they have just perfected and patented? A pitiful and humiliating sight, truly, but unfortunately a common one.

There is, too, another side to this mercenary, patent-seeking spirit that the present conditions have fostered. This is the way in which the supply combination adapts this professional narrowness to its own uses. Its agents in the field, and its representatives in Washington, watch narrowly for new devices, and anything that promises at all is bought up as soon as the patent rights are perfected or even before. And then the new device is shelved in order that it may not interfere with the stock designs already on the market. No one knows even remotely how many hundred appliances that would make far better work and easier, have been shelved this way, with a consequent arrest of development in the science, and a general lowering of the moral tone.

To overcome this hampering spirit in our ranks will require a strong propaganda, and for this there is only one agency on which we may, with any degree of certainty, rely. That is a sound, far-reaching literature that will preach *higher professional standards* and hold the fraternity *up* to them. Manifestly it is idle to look to the house-organ for such work. It could not, even if its editors had the inclination, work against the interests of its owners, as it would have to, in order to do any good along these lines. For such work we must look to *independent publications*, conducted in the interests of the workers in the profession, and *not* in the interest of any supply dealer or manufacturer no matter how rich or how important.

As the standing of a profession is always determined by the character of its literature, so the rise of the members of the profession, in an ethical and worldly sense, may be distinctly traced in the rise of their periodicals. As I have already pointed out, the physicians of England had neither repute nor standing until the *Lancet* made *both* for them. They were merely leeches and ranked with the barbers.

Railroading, both in England and America, was a trade until

the founding of distinctive class publications. Similarly, the electrician was an ordinary handicraftsman, until there appeared in this field papers worthy of the new industry. Then electricity became, as it is to-day, one of the most important and dignified professions in industry. Throughout the field of human endeavor similar progress may be traced. A worthy, dignified literature was always the precursor of a worthy, dignified standing. And it will be so with us. We can have neither hope nor promise of real solidity, we can have neither the high rank nor high reputation we merit, until we put forth publications that shall be untrammelled by commercial interests, and that shall be conducted in the interests of the profession and not in the interests of this house or that.

You may rest assured that until there *are* representative publications that shall record progress, stimulate research and bring about an interchange of ideas, we will advance, if at all, only at an unsatisfactory pace. Indeed, I am not at all certain that, unless we have such a stimulus, we shall advance at all beyond a certain point; that we shall not be overtaken with dry-rot; that the spirit of dwarfing commercialism which rests on us now, will not eventually cause a retrograde, instead of a forward, movement. As it is now, every step in advance that we have taken has been due to the effect of some energetic, public-spirited individual who has been carried forward by a true love of the profession. Unfortunately, there is not enough of this spirit to warrant our relying on it for general and continued advancement.

At any rate, the time has passed when we *ought* to depend upon *disconnected efforts* here and there. We ought to get together in some manner and through some agency and inaugurate a systematic method of stimulating scientific work. We ought to get the profession further away from the mechanical and commercial side. We have plenty of men in our ranks who would be only too glad to take up the scientific work so urgently needed, if they were assured practical and substantial encouragement. I can name over a dozen men who have in them the capacity to develop this side of our profession. Like all true scientists they are *impractical* in the business sense. We ought to get behind these men, to establish them in a laboratory of research, and provide them with a publication that would enable them to spread before the profession the results of their work.

Unless we do something of this sort, unless we found a proper literature and arrange for a proper system of original research, we will wake up some morning and find the "pre-eminence of the American dentist" a thing of the past. Even now the foreigners are leading us on the purely scientific side of our work, in the development of those principles and ideas that after all must be the foundation of the profession, as against the mere utilitarian foundation of a trade or industry. On our own part, we have grown to rest too well content upon our superior mechanical ability, oblivious of the fact, apparently, that by neglecting the scientific side of the work, we are pushing away from the goal instead of toward it.

The laboratories abroad are going deeply into the questions that we have merely touched on. They are digging to the roots of things. They are creating what must always be the true basis of medical work—they are seeking the *cause* of things for which we simply seek the cure. We are, for the most part, simply meeting the difficulties as we come upon them, and attempt remedying them by mechanical processes, instead of going deeper and preventing the difficulties in the first instance. As the result of such a superficial course, we have already begun to lose standing—so that while our representatives, who have gone abroad are accorded a high place as operators, we are scoffed at as scientists, and most of the scientific progress that is made is coming out of European laboratories.

This state of things is to be particularly deplored in view of the fact that our profession has always been shown the greatest consideration by American people and American institutions. The National and the State Governments have given us every protection and are prepared to foster our work along any line we may desire to push it. But, instead of taking advantage of this condition, we are puttering, making pretty speeches, developing the purely mechanical side of our work, and doing nothing practical or permanent to develop the scientific or fundamental side.

Let us "cut out" of our meetings some of the long-winded papers that merely kill time and interest. Cut out the rehashes of primary facts that have been drilled into college students, and substitute in their place a measure of new scientific work; some-

thing that will be as helpful in the *theory* of dentistry as the clinics are in its *practice*.

In conclusion, I would make these suggestions:

First.—That we institute some organized measure to prevent the exploitation of our students at the outset of their careers by the supply dealers and manufacturers.

Second.—That we keep our meetings and conventions clear of the commercial element.

Third.—That we organize a movement that shall bring about the foundation of an independent literature.

Fourth.—That we organize a systematic movement for original research.

When we accomplish these *four things*, we will have taken a long step toward the emancipation of our profession from those conditions that have kept us behind all the other professions in the upward movement; we will have done that which will insure the up-lifting of our calling toward the high place it ought to occupy; we will have made it clear that we stand for pure ideals, the advance of science, and the eradication of commercialism. Let us but work together in these matters, and we will cast down the last stone in the wall that divides us from equality with the best there is in medicine. This, gentlemen, is what I mean by "Professional Emancipation and How it May be Effected".

DISCUSSION.

DR. H. C. SEXTON.—When a copy of Doctor Weirick's essay was sent me, along with a request to prepare to discuss it, I told our executive committeeman I thought some one else had better be chosen, since I found myself very much out of sympathy with his ideas and opinions. "That's just what we want," replied our eccentric committeeman, "for when everybody agrees there can be no discussion. If you don't like what Doctor Weirick says, just talk to him like you talk to your wife when nobody's around."

I would not have you think from the foregoing that I consider Doctor Weirick's paper without merit, for I certainly do not; only its merits; in my opinion, have been expended in a bad cause. No one could uphold the opinions set forth in this paper better than has the essayist. The treatment is all right, but the opinions are all wrong.

To begin, then, I must disagree with Doctor Weirick when he says that as a profession we act upon a petty, repulsively commercial basis. We have our faults, but in this respect we are no worse than other professions. Indeed, I am firmly of the opinion that what the dentist most needs to-day is a better business man, not a poorer one. It is a mistake for a professional man to get upon stilts and look down upon commercialism. We are all, from the highest professional man to the poorest man, working for self-advancement and we must not try to deceive ourselves into thinking that we are or should be philanthropists. We are no more moved by greed than physicians, and surely—surely, we are not more commercial, more avaricious than the lawyer with whom the essayist compares us to our disadvantage. If this latter were true, then we were damned indeed.

There is an old story about the lawyer that I cannot forbear repeating here. The client had been told that his case would be undertaken on a contingent fee.

"But, sir," he asked, "what is a contingent fee?"

"Well, it's this way," said the lawyer; "if I fail to win your case I get nothing; if I win your case, you get nothing."

Doctor Weirick says, "I am tired of seeing the section of stomatology of the American Medical Association lagging perpetually at the rear end of the profession; I want to see an end to the condescension and the patronizing that are always extended to practitioners of our profession by the members of the older branches of medicine—an end to the humiliating position we occupy in the meetings of the American Medical Association."

Now, in the beginning, I led you to believe there was scarcely a statement of the Doctor's that I could agree with, but here I shall have to retract. I, too, am tired of this humiliating position into which we, as a profession, have been thrown. I am as tired; indeed, I suspect, more tired, than he of the condescension and patronizing to which we are subjected. But though we agree in our tiredness I fear we shall disagree in the methods of cure we advocate.

My cure is this: Let us stand upon our own feet and not be foreverlastingly whining around the medical profession for admission to their ranks, like a sick puppy wanting to be taken in out of the cold. Of late years there has been entirely too much of this boot-licking around positions. Our profession in our work is much nearer perfection than is the medical profession in theirs. Then why, in the name of the great two-headed Janus, should we come down from our high estate to seek an inferior station under them? We have been patronized and humiliated, you say. Exactly so, and why? Because by our grovelling we have earned only the contempt of the older profession. We are not wanted in the medical profession; then why lower ourselves by trying to butt in? Let us quit this sick puppy whimpering, this self-degradation, this boot-licking about men who in their world's work are far, far behind us. We are an independent profession and we are not a specialty in the practice of medicine. Then, like our forefathers of '76, let us sink or swim, live or die,

survive or perish on our foundation of freedom of action, freedom of conscience and freedom of name.

And speaking of names, I must side-track a little to air my views on the word, stomatology. In my opinion the dentist who considers the word "dentist" not good enough for him is a—, a—, well, it would not be polite for me to say just what he is. There is too much twiddle-dum and twiddle-dee, poppycock and fol-de-rol in the makeup of that word stomatologist. To my mind, it is no more an evidence of progress than a wig is of hair. I am not only suspicious but I am certain there is a bald spot underneath.

The essayist says we have undoubtedly done more to ameliorate suffering than any equal number of men in the world. This is true, and furthermore, let me say to you right here that our relief of suffering has been through mechanical means and not through medical. Mechanics is our foundation, our indispensable foundation; medicine to us is a side-issue, an incident.

And further the essayist says: "While our representatives who have gone abroad are accorded high places as operators they are scoffed at as scientists." Here the doctor comes near drawing out the thread of his verbosity finer than the staple of his argument. In other words, our European brothers are better physiologists, pathologists, bacteriologists and microscopists than we. But we can fill teeth and save teeth better than they. Then let the so-called scientist go on studying their wiggle worms, while we go on perfecting ourselves as operators. I, for one, have no fear of the result. I shall put my money two to one on Young America every time.

Take Doctor Weirick's own statement of our greatest needs to-day. He says: "We need substances to take the place of unsightly gold; we need light on the best methods of porcelain inlays; we need better mechanical appliances." Does any one for a moment think we can obtain information on these points from the medical profession? There is neither rhyme nor reason in this. Many of make the mistake of thinking that scientific investigation is monopolized by our medical brethren. Is a thing not scientific because mechanical? God save the mark! Science is no more medical, no more chemical, than it is mechanical. Why, mechanics is the very essence of science! In mechanics there is nothing to be ashamed of. It is a certain and a practical science, a science of methemathematical accuracy.

Now, let us put this in our pipes and smoke it—mechanics have made us what we are. We are mechanics, all of us; we belong to the highest rank of mechanics; we are members of a mechanical profession. Then let us be content, aye, let us be proud of it, and let us not attempt to put gaudy butterfly wings on youthful busy bees. Let us thank God that we are what we are, and that we are not a puny sideshow to the medical experiment circus as are our brethren in Europe; that we have not descended from our high position of usefulness into the maze of uncertainties and guess-work of medicine. Let us tell the American Medical Association

that so far as we are concerned they may abolish their section on stomatology, that we shall remain dentists and shall conduct our scientific investigations without extraneous aid; that our attitude of submission, of inferiority, has been abandoned; that we stand up before all the world an independent profession with entangling and humiliating alliances with none.

Dear old Shakespeare has said:

"To gild refined gold, to paint the lilly,
To throw a perfume on the violet,
To smooth the ice or add another hue
Unto the rainbow, or with taper light
To seek the beauteous eye of heaven to garnish
Is wasteful and ridiculous excess."

I am sorry that Doctor Weirick and I view these things so differently. I am sorry that we are not yet at an end in our friendly disagreements. I take my stand, not for the purpose of stirring up an argument, not for the purpose of being contradictory or obstinate. I am sure I am perfectly honest with myself. There are no other opinions possible to me.

I think the essayist has scared up a mare's nest in the condition he has pictured of our indebtedness, our bondage, to supply men. His statements come as a great surprise to me. I know of no young dentist over head and ears in debt to supply men, whose equipment is mortgaged, whose very independence is crushed out of him. But, on the other hand, I know many a young dentist who, through the kindness of a supply man, has been enabled to begin practice and has succeeded. Of course this was not all kindness on the part of the supply man. It was business, and good business as well. The supply men are not angels. I know several intimately; they are good fellows but without a sign of wings. After all, they are just as the good God made them, only some of them are worse, much as you and I. But even the devil must be given his dues.

I have never heard of supply men establishing dental offices as breweries establish saloons, having practical ownership over them and regarding them solely as distributing stations for their goods. I fear this is a tempest in a teapot. I am sure no such condition exists in Indiana.

Now, as to our dental periodicals being all supply-house organs, I must say that that is very nearly correct. We have one notable exception in the *International Dental Journal* of Philadelphia, Dr. James Truman, editor. We have had other independent journals. They didn't succeed because there is no money in publishing a dental magazine and this is a utilitarian world. We must accept the conditions as they are and abide by them. Manufacturers will spend more money in making a dental journal good than will other men. It pays them to do so. It doesn't pay the other man, so there is an end of the matter. But no one can say the columns of these house organs are not open to all communications. Even Doctor Weirick's paper—quite a severe arraignment of the supply men—will be published and that without a word of alteration. If this doesn't

constitute independence of journalism it comes very, very near it. The supply men come to our conventions upon our invitation and I must say their exhibits are most interesting and instructive. A dental meeting with no exhibits around would be, at least to a country dentist like myself, a very tame affair.

But on following out Doctor Weirick's suggestion that the dental students should be warned and protected from the danger of becoming a slave to the supply man, I can see in the future our own Dr. George Edwin Hunt, preaching with empassioned face and warning finger upraised, a sermon from this text, *a la* Riley:

"And you young practitioners, you musn't try and hide,
'Cause they's two black supply men astandin' by your side,
And they'll snatch you through the ceilin' 'fore you know what you're
about.
Oh! The depot men'll get you
Ef
 You
 Don't
 Watch
 Out."

DOCTOR HUNT.—I want to talk on this subject because I think a great deal can be said in regard to it, and in order to make my talk as short as possible, I will take up Doctor Weirick's position and tell you what I think about it.

In the first place, we must remember that dentistry is an art as well as a science, and we must remember that nearly all of our time is spent in making operations with instruments. This is not true of the literary man nor of the physician, not even of the physician who makes a practice of surgery or any branch of it. They do use instruments, but they do not depend entirely upon them and do not perform operations with them to the extent that the dentist does. The dentist puts in a great majority of his time with instruments in his hands performing various operations. Now, this naturally leads us to consider appliances and instruments to a far greater extent than the physician does, and that naturally leads us to give a greater degree of prominence to men who have these instruments for our use and for sale. They use them with the medical man or the literary man in relation to the things which he uses in his work. Of course the literary man does not use instruments in his work like the surgeon uses his instruments.

Now, Doctor Sexton touched the keynote of why we have dental supply dealers in such large numbers at our meetings. Most societies encourage them. We have had here in Indiana for a number of years a great number of them and I am not yet prepared to say that it is not a good thing. Many of you come from smaller towns where there are no dental depots, and the only instruments and supplies you get, except during an occasional visit here, are bought by mail. You do not have an oppor-

tunity of seeing new things that are brought before the profession as those in cities have and therefore this is an educational exhibit, for it enables you to see these appliances and instruments for use by the dentist and become acquainted with them. You cannot become acquainted with them through the mail, so in that respect I think the exhibit of supplies and instruments is a good thing. And I don't think it hurts the dignity of the profession to have these exhibits in connection with our meetings. If the boys could be induced to close their exhibits more promptly, while Doctor Weirick's paper was being read, for instance, I think it would add to the value of his paper at least.

Now, there is another thought in regard to supply men that I want to bring before you, and that is this: As I say, we depend upon instruments and appliances to accomplish almost everything that we do. Now, the young man when he gets out of college is poor, that is, he is usually poor, and Doctor Weirick is right about that. The great majority are pretty hard up and many absolutely could not start on their life-work and could not begin to use the knowledge they have spent years to acquire if it were not for the dental depot men selling them an outfit on time and taking a chance of getting their money. Do not understand me to mean here that the dental-depot men are philanthropists, but I do believe that there would be many young men who would be absolutely unable to begin the practice of their profession were it not for this custom of the depot man. I am informed, and I think correctly informed, that the various depots charge six per cent interest on the deferred payments. This is no more than fair. They should certainly have a return on their money invested. We would have to pay that from a bank if we were borrowing money there and it's no more than right, as I said before, that these men should receive interest just the same as the bank.

Now, in regard to independent journals. There have been a number of independent journals started in the last few years. I do not exactly like the way in which Doctor Sexton spoke of these journals. He spoke as if these journals were not promoted simply because there was not an opportunity for the promoters to make money out of them. I don't believe any man ever started an independent dental journal in the world, who was ever foolish enough to think that he would make money out of it. The trouble is they can't pay the expenses of it. The *Journal* cost those who started it \$1,000 the first two years and barely broke even the third year. I don't think the man that attempted this journal ever expected to make money out of it. That is an impossibility under existing conditions. But the discouraging thing about it is that they do not even get anything for their time and labor, but absolutely have to go down into their pockets and make up the losses, that is in paying printing bills, paper bills, etc., and this is an extremely discouraging matter for the man who attempts independent journalism. The profession ought to have, I admit, an independent journal that would rank with journals of the American Medical Association. I am told that even this journal loses money each year, but the amount is made up by the American Association, and I have no doubt that this Association could, if it would, start a journal under the same auspices

as are in vogue in the medical profession. But the reason trade journals, published by trade houses, succeed is not because they are making money on their subscriptions, for they do not have a large enough circulation for that, but it is simply because the house charges up to itself so many pages of advertising. That is the only way they pull out even at the end of the year. Some make money in doing that, that is they take twenty-five or thirty pages of advertising and charge it up to themselves at the ordinary rate and in this way they can sometimes show a profit at the end of the year. This is the way they do. An independent journal cannot get sufficient advertising from men who pay cash for the advertising to come out even at the end of the year. Trade journals could not do it if they did not count their house advertising at the full rate.

I am entirely in sympathy with the thought of the paper in regard to fostering original research, but I cannot say how it can be brought about. I do not recall in this country that we have ever had any organization that spent any money for original research. I have had in mind for some time that in the latter years of my life, instead of endowing universities of Chicago, or building libraries over the country, I will just put in a few millions in endowing an institute—a national institute—for original research, and I believe it will be a better thing for humanity and would leave a much greater monument for the man than a library, but that's the only way we'll ever get one of these institutes in America. If we had an institute at Washington—I think that would be the best place to locate it, because of surrounding circumstances—if we had an institute there devoted to scientific research—of course there would be restrictions, we wouldn't get all of it, for physicians would object, but we could get an appropriation for two or three years—if we had such an institute, it would do a good deal for the advancement of the entire American race. They have such an institute in Germany now, but my knowledge about it is extremely vague, but we have several gentlemen with us to-day who have traveled in Germany and investigated their educational institutes there and I hope some one will speak to us about this.

Now, in regard to the patenting of instruments and processes. I don't believe Weirick was quite right on this. I believe that patenting an instrument is a perfectly legitimate and laudable proceeding, but that the patenting of any process is just as illegitimate as the other is legitimate. No one should be allowed to patent a process. No one ever does it in the medical profession. They would not stand for it. The patenting of instruments is really a good thing for us, if for no other reason it is wholly because when a dentist has perfected an instrument that will facilitate our work and the work of our profession, he can only protect the profession in the use of the instrument—that is, by the manufacture of it—by taking out a patent on it. He can then control the manufacture of it and see that his instrument is not badly made, and in this connection it will be better for the dentist, as he will get it up in a form which will be desirable for them to use. There are other grounds for the patenting of instruments which, as I have said before, I think is perfectly legitimate. It seems to me Doctor Weirick hitched his wagon to a star, while Doctor

Sexton anchored his to a mundane rock, and perhaps a happy medium between the two would be better for all of us. I am in favor of hitching wagons to a star, but it is seldom that you can ever catch a star at all. I do not think we should be content, as Doctor Sexton advises us to be. When you become content, you stop right where you are; it is only by reading such papers as Doctor Weirick's and discussing them that we can keep from becoming content. Yes, I believe that we should hitch our wagons as high as possible, but to a star that is within our reach at least and aim at it, even though we do not find it, and even though you find that the tail of your buckboard is anchored to a rock, and we do not make much progress in our ascent.

DOCTOR BYRAM. As I have been the unfortunate one who succeeded in landing all of these exhibitors here, probably I had better say a word in their behalf. I cannot agree with Doctor Weirick in what he has said; neither do I agree with Doctor Sexton. While we should avoid the commercial side of this work as much as it is possible, these exhibitors are here at a great expense and they are part of the education of this meeting. There are not many appliances on the market which we can see unless we see them at this meeting. I remember last year of attending a dental meeting in the northern part of the State and I exhibited some instruments there, and one of my Chicago brethren said: "Where did you get that instrument? We can't find them in Chicago." And I remembered that I got this instrument by writing to the S. S. White firm and describing what I wanted, and I found that they were making it. Had I attended some of these exhibits at some of these meetings and paid a little closer attention to them, I might have saved myself the trouble of writing that letter. And I do think that we should encourage exhibitors. But the exhibitors are working on a scheme now which I believe is a good one; that is, that there is to be one day set apart as Exhibitors' Day, and that day is theirs and that during the meetings of the Association they will close.

There has been a great deal said in the dental profession about experimental work and original research. We would all like to experiment a great deal, but unfortunately some of us are not like some of our competitors who get two barrels of money like one or two other men do in this city, and those of us who must rely on the practice of dentistry for a livelihood find that after we work anywhere from fourteen to sixteen hours a day we are not able to devote the rest of the night to original research. Now, there are only a few men in this country like George Cook. I will repeat it again. There are very few. George Cook is certainly very fortunate. As you can see, he's a fleshy man and he never has to eat anything and so he takes his meal hour and devotes that time to original research. Now, if we could all do that I assure you we would have a great deal more of it. But seriously speaking, unless we are able to establish this institution which my worthy colleague Doctor Hunt spoke of—and when I say this I will tell you that he has already hired me to be the janitor in this building and I will admit you any time you may call.

DOCTOR HUNT.—You were not to be the janitor, but the custodian.

DOCTOR BYRAM.—Yes, I guess I was wrong about that, it was the custodian. Well, you see I have been moved up one degree. Until we can get together and get men to devote their time to this line of work we cannot hope to get much out of any particular line.

Now, I don't do very much experimenting, probably not as much as I should do, but I think I do possibly as much as any man in the State when it comes to original research. I know that it takes a great deal of time. I leave my wife and baby on Sunday morning and spend that time experimenting instead of going to church, because it's the only time I have. This brings up another proposition. Shall we give up our church for our profession? You see there are many things that conflict.

I would like to see a concerted action of the different dental associations in this country and if we could establish a laboratory where twelve men could be employed and let them do this work, I am sure we would be proud of the outcome. The bulk of the work is done in the medical profession by a few men—a comparatively few men—and our percentage of original research is almost as great as is theirs. If we had these laboratories I am sure we would exceed them as we do in every other undertaking.

I agree with Doctor Sexton in part in regard to what he says about talking so much about being a part of the medical profession. A few years ago I did think we would be a part of the medical profession, but as long as they continue to kick us I would rather work independent of the medical profession, and possibly we can attach them to us, just as we will attach Chicago to Indianapolis in a short time.

DOCTOR AMES.—The part of Doctor Weirick's paper that appealed to me most was about journalism—independent journalism—and this has been enlarged upon by many others in this convention to such an extent that I have very little to say in regard to it. But I have this to say, and possibly it will be a surprise to some of you. The *International Journal* was itself represented at Nashville, and it wishes to start a publication for the National Dental Association, and I hope it will only be a short time when we, too, will have a journal, in which we can advertise and publish anything of a desirable and proper nature which may be taken up. I have seen articles which were published in some of these papers which were garbled and maltreated simply because something happened to appear which was contrary or against the best welfare of the particular house publishing that journal.

This matter of original research is a very good subject. The New York Association, some two years ago this May, subscribed in its membership something like \$1,000 and gave it to one of the members for establishing a laboratory for original research. Henry Harsh was made custodian of this fund, and in looking into the matter he concluded in a short time that it was absolutely useless to do anything with a fund of \$1,000, or even \$10,000, it would only be a drop in the bucket as far as

starting a laboratory was concerned, and keeping up original research work. He is now in correspondence with the trustees of the Carnegie fund and would like to establish what is called a Carnegie Institute, located at Washington, for carrying on such original research. Does any one know what this fund is?

DOCTOR COOK.—The fund is \$5,000,000.

DOCTOR AMES.—They would like to establish a laboratory at Washington and have instructors in original research work, and if any of you are in touch with any of the trustees, it would be well for you to write to them right now, that is, if you have any influence. Now this is your chance.

DOCTOR COOK.—There is only one phase that particularly strikes me, of course, and that is the phase of research, not that I have dabbled in that especially, but I have worked some on the line of scientific work.

The scientific investigation of the dental profession as compared to the medical profession, of course, is very small. The medical man has many opportunities in his line that the dentist does not have. Many colleges furnish men with a salary and with the necessary equipments for following out a certain and definite line of research, and especially the line he is teaching. Now, he can devote all of his time to research, while he can also, if he cares to, give some time to his clinical work, and in the meantime he gets a sufficient amount of income so that he can live.

Now, if the schools of this country—and that is the only way to my mind we can ever accomplish anything—if the schools of this country would prepare men first and put them in places and assure them that their places would be kept for them as long as they progressed in proper kinds of work and proper kinds of teaching, etc., then there would be some incentive for the young man, or any one who is inclined to do that class of work, to follow it up, and at the same time keep in touch with the clinical work going on in the schools. I do not believe that the establishing of a scientific institute in Washington, unless it is in connection with an institute of learning, where clinical material can be had, will be of very much importance other than possibly for a man to go there for a few months to work out some particular line of thought which he has.

A man progresses better when put in contact with literature and that is the biggest part of the work of to-day—keeping in touch with literature and with the thoughts of men who are working in similar lines—allied lines of work in which we are interested. I have thought a great deal about this work, and I have looked into the work of other men, and will take for instance Miller, who has followed a line of work that has opened up an avenue of thought to the profession. Miller has kept in constant contact with the practical side of his work. Others possibly have done as much in certain lines as Miller, but Miller, as I said before, kept in constant contact with the particular line of work which he was doing and without that I don't believe he would have accomplished what he has.

Now, the medical man is peculiarly situated, as he doesn't have anything to do but write a prescription and get five dollars for it, and the dentist has to put in hours of operation in order to get that much and in the meantime has to spend money for the material and for the instruments with which he is to operate. Consequently, it leaves him a comparatively small amount for the time he devotes to the operation in comparison to the income of the medical man. The medical man follows his cases through and he gets as much out of his fees, and more out of his clinical observations in a great many instances, than he does in scientific research. The mechanical part of our work is such that it brings us in constant contact with materials that we have to use. I think the greatest lines of research to-day—the lines that would yield the greatest good to the dental profession if investigated—would be the materials that we use. I think this should be investigated as much as the cause of the disease which we are trying to treat. When we look at literature on metallurgy and think of the metals we use in our operations, we are appalled to think of how little the dental profession actually knows about the physical or chemical properties of gold, cements or amalgams that are used for preserving teeth. I am informed that quite a good many experiments have been made in regard to this, but I can assure you that the subject has only been touched on. The matter of cements which Doctor Ames spoke of deserves a great deal of credit—I mean Doctor Ames deserves a great deal of credit for what he has done in this line. It was only last night that he took ten or fifteen of us to his room to teach us how to mix cements. We do not give time to manipulative work and manipulating material. One great line of research work that we could do would be to learn these principles more thoroughly than we know them at the present time. The research in bacteriology, physiology, anatomy and chemistry, etc., is not going to do everything for us. They are important—vastly important—to the dental profession, and the dental profession is very lacking concerning this, but they do not have to use them every day, and they do many of these materials and if they would take one line of work on chemistry and histology and study it out, it seems to me it would be of inestimable value to them. It is impossible to understand these things unless you understand the fundamental principles of physiology and histology. It is a sad reflection upon the dental profession when we say that we have but one or two men who can teach histology in the dental profession. We have to go to the medical men for this. Now these things are the things, to my mind, which we need more than we need to establish a laboratory in Washington where only rich men's sons will have the opportunity of going. Educate the student; educate the teacher who is going to teach the student; teach the student the value and effect of the proper manipulation of things which he will use in practical life.

DOCTOR NYMAN.—I rise to discuss this paper largely because of the fact that I believe Doctor Weirick will enter into a fiercer fight for the support of his views and will defend them with more joy if he finds

that I am opposed to them, than otherwise. At least, that has been my experience in the past. He fights with a much greater degree of strenuousness and glee when fighting with me.

Now, gentlemen, I feel that our standing before the public depends entirely on how we bear ourselves while we are in the public eye. I think that the profession on the whole does lack what we may call a *esprit de corps*. They do not give evidence of learning and culture, which is always appreciated, nor do they give evidence of being men of experience and gentlemen, this is of great value in determining what shall be our relative standing in the eyes of the public at large. They will accord us a much higher rating if we give evidence of learning, culture and experience. This is not better demonstrated than by the artist Whisler, of London, who brought suit against a man to collect a bill of \$1,000 for one of his paintings. The man insisted upon a jury, feeling of course that a public man would readily recognize the injustice of such a charge for so little time spent. This charge seemed to the man a ridiculous one. Finally Whisler himself was put upon the stand, his attorney asked him a few questions and turned him over to the defendant for cross-examination, and the defendant's attorney said:

"How long did it take you to paint that picture?"

Mr. Whisler answered, "A part of one morning, sir."

"And you have the audacity to ask \$1,000 of this man for a part of one morning's work?"

"No, sir; but I have asked him \$1,000 for the experience that is based on the work of twenty years."

And in spite of the fact that the defendant's attorney appealed to the jury in every way he could, the jury rendered the unanimous verdict for \$1,000. His own bearing and the reply he made gave evidence of the fact that his ability to paint the picture was due to the fact that he had worked twenty years. He gave evidence of learning, culture and experience, both in his bearing and in his reply. And, gentlemen, I feel that the public at large would accord us a much higher rating—will see greater value in our services—if in our conduct before them we give evidence of these three things. Now, then, we all know that a man cannot combine a high professional standing with drone business principles, but *vice versa*. For instance, if a man works at his life-work with the predominating idea that he will come as near perfection in all that he does as it is possible to, no man will criticise him. If he is an artist instead of an artisan people will accord him the highest possible value for what he does, for in the history of the race it is the artist that has given all that is good for the weelfare of mankind and never the artisan. It has been the man who has looked to the perfection of things, who has accomplished for man all that has been done for his welfare. Now, then, let our conduct before the public and the profession be so as to entertain their respect, and not their disregard. We should avoid sensuous displays and displays of egotism. The truly scientific man cares not for sensuous displays, no matter how it can be accomplished. He never gives any evidence of the fact that he himself really thinks he is great. If you

will notice, these egotistical displays are always good means of showing the incompetency of a man. A man of learning should avoid these kind of displays.

Now, in regard to patents. I cannot agree with Doctor Weirick. A man who invents is in a certain sense a discoverer, and discovery always carries with it certain rights of possession. It matters not in what field the discovery is made, whether it be in the field of learning or invention. I think it is perfectly just that an inventor should have the right of his possessions. I think it would be a far greater wrong to deny a man these rights which are his. There are two kinds of patents. Patents on appliances and patents on processes. I do not believe in the patenting of a mere knowledge of what to do and how to do it, where really nothing is essential, but that a man study out these principles, but when a man really discovers anything, he should be entitled to the benefit of it because inventing an instrument is seldom the result of accidental discovery or of a mere dream, but means the result of hours and hours of labor, and if this labor were devoted to something else—something in the way of his professional work—the man would have certain definite returns. Then he should also have definite returns from the invention of an instrument. An inventor is certainly entitled to pecuniary reward. It is almost the same in the medical profession as it is in ours. I know men of wide reputation who hold patents on certain instruments. They have taken out these patents, not only for pecuniary reward but also to protect the profession from having spurious articles made, and if it were not for this there would be all kinds of articles made. By having these patents a man who infringes on these rights can be punished.

Gentlemen, I feel that there are too many journals. If we could have just one journal published in a week, we could have all of the transactions of all of our societies in the country published, and still have plenty of room for all kinds of articles and would then have room for articles on research work. Then if our profession supported that publication and no other, we would soon have a stop put to the practice which is now so much in vogue of every house or corporation that comes into existence starting up a dental publication immediately, and hiring some man to run it. These dental journals which are put up by these houses do not improve our standing, nor dignify the profession in the eyes of other professions or in the eyes of the people. I feel that much good could be done in raising the standard of the profession, if, in our colleges, some definite time was set apart for the study of ethics and professional standing, and I would have the most entertaining man in the faculty deliver lectures on these subjects who could absolutely convince his hearers of the justice and value of what he said. We should do as much as any member of the medical profession. In fact, I feel that our profession is far more scientifically backed than the medical profession, and I believe that we truly relieve suffering more even than the medical profession, and we give certain definite permanent results that do not come with the medical or legal profession. We do not stand before the public in exactly the same way and on the same high plane as is

awarded to the medical and legal profession. And why? The public at large feels that the lawyer stands between their liberty and life and possibly their earthly possessions. He knows that it means one of these three things if he gets into trouble; and the public at large regards the physician and surgeon as the men who stand between life and death, or between him and death, and so of course they award them a higher rating than they award the dentist. In our profession the loss of teeth can be replaced by temporary ones and, although not as good as their own teeth, it still does not mean life and death to them. This is the main reason why the public at large hold the doctor and lawyer in such high esteem and put the dentist on such an inferior rating. There is no reason why we should not lift ourselves up to the highest possible plane and receive the highest possible rating in the eyes of the public, so to speak, and we can do this by maintaining an independent spirit and giving evidence of learning, culture and ability.

DELEGATE.—I would like to say a few words in regard to the Carnegie Institute, as the matter has been put to me. I did not know that this matter had assumed any definite shape with the people who have the fund in charge, but as I understand it, Doctor Cook is in error in saying that it would be an institution where rich men's sons only might have advantages, and I have heard this same matter talked of, and I have been reading about it, too, and I believe that it is the intention of the trustees of this fund to not only give the advantages of this institute to any one, but to subsidize any person who comes before them properly recommended to carry a certain line of work and to give them proper instructions in that line. It is also suggested that there will be made a means for their living in Washington during the time they are in this institute. Of course there will be a possibility of partiality being shown, but as I understand it, it is the intention to make this institute so that it will be for the rich man's son, of course, but so that it will also be for the man having some special merit, who has been recommended by some society to the trustees of that fund, and in that no partiality will be shown. It would be a benefit to this society and to every scientific society in the land.

DOCTOR COOK.—I did not exactly mean that it was for the rich man's son alone, but you will find that it has been intended very largely for scholarship of the different universities. The Carnegie and Rockefeller research fund has been awarded to men who have followed a line of research or have started on a line of research in some other college career, and there has been an attempt on the part of a large number of men who have fortunately come in contact with these men who follow a line of work until they show promised ability—they have attempted or are now attempting at least to put these in good positions. This is not on a scholarship basis altogether, but is a fund which can be reached in and through the recommendations of a number of men who have found a certain man equal to a certain class of work. It is impossible

for the dental profession to think of coming in the near future in touch with the men who are receiving the benefits of that fund, for at the present time I do not believe that the recommendation of this society or any other society of dentists would be able to reach them, because that fund is still very largely in the hands of university men of great experience in research work, and the dental profession—the dental research student—does not come in contact with that class of men very closely. These research men look upon the dental profession as truly mechanical men, and as none of them up to the present time have become very distinguished in the research on metallurgy, or certain physical work, for most of the time has been given to biology, I do not believe outside of a few men who are attempting to do a little research work in the dental profession—I don't believe they would get much out of it unless they could go to universities and acquire a technical knowledge of a certain line of research work, and there apply for a certificate of ability to do that class of work, and then be permitted to do it. I believe, however, that the dental profession might, in a combined way possibly, select two or three men and put them in touch with certain research men in universities and in that way get them into touch with the fund of this research laboratory work that has been established. I think this is the only way we could expect to do anything of this sort at the present time.

DOCTOR WEIRICK.—I haven't very much to say, and I should like to finish it before you adjourn. There is only one thing I want to say to this society, and that is this. That the only way I can get along with Doctor Nyman is to let him have his own way.

I want to thank you for the discussion of this paper and for the kindness you have shown me. I have nothing further to say in regard to this paper.

PRESSURE ANESTHESIA AND IMMEDIATE ROOT-FILLING WITHOUT REMOVAL OF PULP TISSUE.*

BY T. S. PHILLIPS, D. D. S., BUFFALO, NEW YORK.

This may be new to some of you, it may also be contrary to theory with most of you, yet it is done successfully in thousands of cases, as I will show and explain at clinic at present meeting. The doubting Thomases are past; old theories are being constantly overthrown; thousands of lives have been lost rather than depart from theory. The days of progressive dawn are at hand, and I who can say that this or that cannot be accomplished. Some believed that biting a rattle snake was a cure for toothache and

*Read before the Lake Erie Dental Society, 1904.

decay; these things are of the past, let us look to the present and future with hope for many new and useful improvements if they do overthrow theory; let us join the procession of progress and condemn not that which we do not understand.

For five years the writer experimented and studied this subject, believing that some mode of treatment could be found and do away with arsenic, which in the hands of many is a menace to human life; its action when applied even carefully, causes not only the death of the nerve, but renders the tooth an absolute foreign body by destroying its periosteum, necrosing the bones of the jaw, causing epulis and often blood poisoning. We have all seen these effects from its use; its days of usefulness are past as a nerve destroyer, for by modern means and pressure anesthesia we are enabled to perform any and all operations heretofore performed without it and save the periosteum of the tooth from destruction, which must be admitted is an important element.

Pressure anesthesia is one of the greatest discoveries since Morton for the relief of pain; to whom is entitled the credit, I do not know, but who ever he is, he is entitled to our gratitude, as it enables us to perform one of the most delicate operations without pain, besides renders possible the immediate filling of the tooth without removal of nerve from fangs, therefore doing away with the tedious, painful and doubtful filling of root canals and their treatment.

The old adage that "time is money" is as true to-day as ever. Our time is valuable, and if ours is, our patient's time is also. Suppose he is a professional man, as many are, their time is often more valuable than ours, but he has to dance attendance on us or lose a valuable tooth, while with new methods his whole trouble could be over at one sitting of thirty minutes instead of from three to five days. The operator not only earns his fee, but his patient's gratitude as well.

For the past seven years I have not had arsenic in my office, but have treated all cases where it has been indicated, in the following manner:

Using pressure anesthesia, removing the bulbous portion of the pulp and filling with mummifying paste of some kind, of which there are many on the market, none of which are satisfactory in my hands, as I believe the principle of using moist substance under a filling is wrong; for the past four years I have

used an absolute dry preparation in form of a tablet and have not known a failure in the thousands so treated.

The operation is performed in the following manner: A live pulp is presupposed aching or otherwise with slight or extensive exposure, may be of recent or long standing, as long as fresh blood is present and the pulp is not putrid. After washing out the cavity, all softened dentine that can be removed without pain is carefully cut away, leaving a good exposure, when about one-fourth grain of cocaine is placed on the nerve, a ball of pink rubber a little larger than the cavity is placed over this, gentle but firm pressure is brought to bear. In from ten to thirty seconds, pain ceases, when the bulbous portion is cut away with a large, clean bur running at high speed, wash out thoroughly with warm water, allow circulation to return, then stop blood with dioxygen, dry out cavity and fill by placing about one-half tablet of pulp preserver in pulp chamber, then crush down with pellet of paper or cotton, then fill with amalgam at once, using as much pressure as necessary to condense filling properly.

I use for pressure a Park Davis No. 8r, which is composed of cocaine one-half grain, morphine sulphate one-eighth grain, atropine sulp. one two-thousands; this acts far more quickly than cocaine crystals, giving better results and will cause complete anesthesia in from five to ten seconds in most cases. If continued a moment after pain ceases, it will become so propound that after the bulbous portion has been cut away, it will be some moments before the circulation will return and the amputated nerve bleed. This is an important part of the operation when the pulp preserver is to be used, as it relieves the engorged tract at the apex; unless this is done more or less pain will be the result, as nature has to carry off through absorption this engorgement. After slight bleeding the cavity should be washed out with warm water, making sure all chips from the bur has been removed from the cavity.

Teeth so treated do not discolor, as this dry preparation acts largely by absorption, thereby drawing the blood from the tubuli. I find teeth so filled after three years to be in as perfect condition and color as when alive; this is a point in favor of the method employed.

TYPICAL CASES.

Third molars are rendered simple cases by this treatment, also buccal cavities, the operation being as easy from that aspect as any without cutting away valuable tooth structure. Indeed, the operation is so simple and easy, and with the least possible loss of tooth substance as compared with old methods, that one familiar with it wonders how they have succeeded as well as they have in the past.

That this method is sought after by leading men of the profession, I refer you to *Items of Interest*, March, 1904. That it has come to stay, I believe, as I know of no way we can save as many teeth in any other manner. Out of thousands so treated, I have yet to see one case of abscess. How many do you find in the old way—arsenic treatment and root filling? I leave the question to you.

FADS.*

BY I. NORMAN BROOMELL, PHILADELPHIA, PENNSYLVANIA.

While the term fad is comparatively a new one, the conditions to which it applies existed in the early ages of mankind, and have continued to do so in various forms down to the present day. The term which lacks sufficient dignity to be authoritatively included in the English vocabulary is commonly used to define any unusual or perhaps abnormal devotion to certain principles or practices, accompanied by a tendency to disregard all other principles and practices. In many instances the devotion to some special theory or action is so pronounced and so persistently worked upon by the person or persons interested, that it is not unusual at the present day to hear such spoken of as cranks, an offensive term seldom wisely or correctly applied. It has been said that there is good in everything, and with a faltering belief in this maxim, I propose to consider some of the fads which have from time to time invaded the practice of dentistry, some of which, through their influence, if not directly, have proven of inestimable value, while others have resulted in woeful disaster, bringing

*Read before the Odontological Society of Western Pennsylvania, 1904.

shame and remorse to the fair name of our specialized vocation.

Fads in dentistry are not of recent origin, but I am inclined to believe that most of those which have proven detrimental have had their innings during the past thirty or forty years. The fads with which we have to deal are of two kinds, first those which originate in the mind of an individual and are not accepted by others, yet persistently and everlastingly upheld by him as the only way; and second, those which originate in the mind of an individual or perhaps spontaneously, and are accepted and practiced by a considerable portion of the profession at large. I believe that much good may result to an individual through devotion to some special feature of practice, and that indirectly others may be benefited thereby. One man may be a fanatic on antiseptics, another devoted to cavity preparation or instrumentation, and a third perhaps to medical dentistry. While these deeds may be uppermost in their respective minds, they do not permit them to interfere with their work in general. Fads of this nature carefully guarded, are to be encouraged, for through their compound there results a substantial and reliable foundation for better results. On the other hand, these same individual attachments may prove most disastrous, by a tendency to engender carelessness or disregard for certain other features of practice, the pursuit of which is essential to success.

During the early part of the past century there existed a condition of practice so widely employed, so clamored for by the laity, that it may be included among the fads of the profession. I refer to the injurious practice then in vogue of attempting to make the teeth white. This was not only practiced extensively by the dentist who recognized that it was what the public wanted, and therefore an opportunity to gain favor, but it was in turn sought after and in fact demanded by the public because they believed it to be a logical practice, accompanied by little or no evil results. This was an injurious custom with fortunately a short life, and one for which both the patient and operator were responsible. On the part of the dentist the practice for a time prospered, principally because he lacked the moral force to bring about its condemnation. It likewise flourished because the patient, ignorant of the mischief which followed, was inclined to be dissatisfied and even questioned the ability of the practitioner who neglected or refused to perform it. The operation, which con-

sisted in applying some one of the mineral acids to the surface of the enamel, while condemned by a few, was sanctioned by many, the argument being "that the professional man must please his patients at all risks." While such a doctrine as this should be strongly refuted, and I am inclined to believe that in a general way it is at the present day, I fear there are many instances in which the desires of the patient are gratified at the expense of their physical welfare. In support of this, the writer recently met with a case in which a gold bridge of considerable size was placed in one side of the upper jaw. The conditions were such that an appliance of this kind was strongly contraindicated, the occlusion being of such a character that it was impossible to obtain sufficient space for the necessary abutments. The patient wanted the bridge and was determined to have it. The dentist feared the result of a refusal and acceded to her wishes. Within six months, the result from this misapplied appliance was most painful and destructive. With the occlusion of the teeth practically destroyed, and the resultant loss of function, periodontal inflammation became universal, while marked anatomical changes had taken place in the temporo-maxillary articulation, this latter condition being so pronounced that with the bridge removed, the normal occlusion was not restored except by an extreme effort upon the part of the patient to bring it about.

During the short period which the custom of "making the teeth white" was in vogue, it must be admitted that very much more attention proportionately was given to the subject of cleansing the teeth than at the present day, but this cleansing was not to any extent a prophylactic against caries, but more a desire to make the teeth white, and thus in general add to their charms. A dental practitioner of that period was compelled at the conclusion of his operations, to be able to so treat the teeth that they would become white, a failure to do so placing in jeopardy his professional worth. I cite this fact to show that fads in dental practice are not a new condition, and the balance of the paper will be devoted to such questionable modes of practice as have existed within the personal recollection of the writer.

A method of practice which we may class as a fad, responsible for the loss of many teeth, and which proved to be the salvation of but few, was that following closely upon the introduction of cohesive gold for tooth-filling purposes, the restoration of

form in the crowns of the teeth, as well as in some instances portions of roots, by a process of hammering and welding so tedious and so painful, so destructive of nervous force both for the patient and operator, that it was little less than vicious. Yet for a period this practice held sway and attracted universal attention. The programs for dental meetings were replete with clinics on contour gold fillings, the magazines were loaded down with descriptions of the technic and management of the subject, yet it all served no good purpose, but speedily proved a boomerang, and to-day has but few followers. Perhaps the majority of those present recall the days to which I refer, as well as the labors and eccentricities of the men who were classed as the leaders in the movement. The writer had the good fortune to be thrown among some of these, and being young in years, and inexperienced in practice, looked upon the work of these men as marvelous. How could he have believed otherwise; he was assured that the zenith of operative dental practice had arrived, and believed this to be true. I recall an evening spent with Marshall H. Webb, at his office in Lancaster, Pa., during the height of his professional renown. For a period, Webb was perhaps one of the most zealous exponents of cohesive gold contour fillings. While the work which he did was marvelous from a mechanical and manipulative standpoint, both beautiful and wonderful to look upon, the mention of the fact makes very poor reading to be included in conservative dental history, because it cannot be said of him that he "saved teeth." On the evening above referred to, the writer and one or two others were granted a "private view." The patient was a young man, with a lower third molar minus a crown, and the operation as mapped out was that of restoring the missing crown by building it up with gold foil, which Doctor Webb succeeded in doing by the aid of an electric mallet and a flaring gas light within eighteen inches of the seat of operation. Shortly before daylight the following morning the rubber dam was removed, and the patient was discharged, "cured." No bulletins were issued regarding his physical condition nor that of the little party who witnessed the operation, but it was a long tedious night for all concerned, with perhaps the exception of Doctor Webb, who was so engrossed in his work that he had little thought for other things. While Doctor Webb was a fanatic in regard to contour work, he was not alone in his labors of tooth

destruction. The practice spread like wildfire, and seven-eighths of the profession were for a time carried away by its enchantment, so that they became equally guilty as tooth destroyers although of course not uniformly skillful.

Now let us recount some of the ill effects which followed this skeptical practice. First, a great sacrifice of tooth structure, periodontal inflammation more or less pronounced, not infrequently followed by loss of pulp vitality, and the train of evils which usually followed such pathology, an extensive display of skillfully wrought mechanism to take the place of that most beautiful of nature's tissues, the enamel of the teeth, and finally if the tooth was not lost entirely, a breaking down of its walls and the dislodgment of the filling. All this, to say nothing of the feature above referred to, the nervous tax upon both the patient and operator. This practice was valuable to a degree, but it was the reckless enthusiasm which accompanied its coming, the desire and disposition to have it supplant every other method, and the tendency to make it universal, which did the damage. I may admit that the principle was in a measure correct, and marked an advance in our work, but the application was woefully and disastrously wrong. The method was no doubt assisted and sustained by the introduction of the electro-mechanical mallet, the use of which made the process of packing gold a pleasant pastime compared with previous modes.

The use of the electric mallet may also be classed as one of the fads to which the profession has doffed its hat, and for which courtesy it promptly received in return, a stab in the back. I do not intend to infer by this that the electric mallet has no place in the dental outfit, nor do I claim that in no instance should contour gold fillings be inserted, but had the combined practice of electric mallet and contour gold filling continued as it began, almost, for a time the universal custom, the destructive result would have been unlimited in its scope.

Scarcely had the abuse of gold as a filling material reached its height, before the so-called "new departure" was proclaimed, and the theories and practice which prompted this announcement were so thorough and convincing in character that they were almost immediately accepted as worthy of careful consideration, and the profession as a whole began to think. The conservative men were inclined to accept the creed of the new departure "in

proportion as teeth need saving, gold in the worst material to use," but those who for some time had been at the head and front of the gold craze were dogmatic in their belief that all teeth worth saving could be and should be filled with gold.

It was indeed a fortunate day for the dental profession when Doctor Flagg and his associates proclaimed that there was some good in plastics, and especially in amalgam as a filling material. The pronounced opposition which this announcement met with was exactly the thing needed to bring about a gradual change of opinion regarding the universal use of gold as a filling material, and from that time on, the destructive and unsightly fad of elaborate gold contours was condemned. The work of Doctor Flagg in this direction became a fad with him, but his was a laudable habit, and was the means of bringing about our professional salvation, as well as the restoration of a shaken public confidence.

Perhaps one of the most pernicious fads which has invaded the realms of dental practice is that of modern crown and bridge-work.

Until quite recently this was "the latest thing in dentistry" and it may be said to be in its active stage even at the present time. Coming into vogue, as it did, by a gradual evolution, the practice has been so used and so abused that to-day it stands for all that is bad in dental practice. Valuable as it may be in a limited number of favorable cases, the stigma of its ill use is apparent in the mouths of individuals in all walks of life, and the censure for this rests not upon any one class of practitioners, but upon all alike. It has brought prosperity to the artful charlatan, and transient fame to the ethical practitioner. It has for a time satisfied the capricious patient and perhaps afforded them a sense of gratification from the standpoint of usefulness, but both of these have generally proven conditions of short duration. In many instances, the evil results following the misapplication of this system of dental restoration has been little less than infamous, and it is needless to be specific in regard to what these are, because by this time they are conditions with which all interested are well informed. The argument which I desire to present, and which applies to this as well as to other contagious and therefore questionable methods, is the disposition of the individual practitioner to fall in line, keep in step, and follow the procession without due consideration for his behavior, while the common people

look on with adulation and wonderment. The public is willing to accept, and the profession ready to apply, its latest adroit discovery, and in this way a new fad is ushered into existence. Accompanying the birth of a new process appears a decided inclination to apply it, at first perhaps with a degree of caution, but sooner or later without discrimination, even to the extent of discarding methods that have been well and truly tried and about which there exists no question of doubt. To-day bridge-work is the fad in dental practice, and woe be unto him who cannot or does not meet the demand; to-morrow, a new process appears. The competition in this direction must be met, and vigorous and misapplied attempts are made to do so, all of which is at the expense of the primary function or fundamental principle of dental practice, the conservation of the natural teeth, or the replacement of such as are lost, by substantial and carefully selected methods.

I am not in accord with the idea of complete contentment with present conditions, respecting riches, dignity or professional achievement, but in a measure approve of that restlessness which favors advancement, provided this can be brought about without detrimental results, for such is not progression, but rather retrocession. We cannot afford to be sluggish or inattentive to that which brings us to a higher sphere of usefulness. I believe that we should be full of exertion and activity, and not lie in a state like those creatures who appear to live for no other purpose than to increase their bulk, merely to grow up out of the earth or from its products, and finally through some appropriate channel return to earth again.

To-day we may be said to be standing upon the threshold of another new departure in dental practice, the process of filling teeth, and tooth restoration by the formation and adaptation of porcelain blocks to supply the missing parts. One of the objects of this paper is to present a plea in behalf of this newly born infant into the dental family. By observing the wretched and destructive lives of other off-springs from the same source, let us not be like the barbarous mothers who murdered the innocent creatures to whom they gave birth, nor the unnatural fathers who bathed their criminal hands in the blood of their own children, but let us at least be human and charitable toward this new heir, so that it may live, be nourished, and trained in the way in which it should go, so that it may not only be a comfort to its parentage,

but that it may be a means of perpetuating its own good. To accomplish this, the porcelain process *should not become a fad*, and to prevent its becoming so it should be treated most conservatively. If this can be accomplished, if it can be kept free from contamination such as proved disastrous to earlier special modes, it has then within it the power of reclaiming all that dentistry has lost through past methods of a fad character.

In conclusion, is it too much for me to make the statement that in the past we have been slowly murdering our profession by these flights of folly practice? We may argue in defense that we have not stabbed, poisoned, or even wished for its death, but this is a poor paltering with our conscience. We may be said to be murderers in the same sense that a mother has been brought to the grave by the misconduct, or incurable vice of a son, who pictures to himself his own guilt as he stands beside her death-bed, to which he himself has hastened her. He knows that the harrassing cares, the mental anxiety, the incessant alarms, the never-ending state of uncertainty, the grief and the tears which he has occasioned have done the deed. In like manner we know that the misapplication of a good principle, the neglect, and abandonment of a trusted practice, for a method untried and unproved, has deliberately made us professional malefactors. We know this to be true, we see the proof with our own eyes and hear it with our own ears.

TEMPERAMENTS.

BY R. W. TENER, D. D. S., WHEELING, WEST VIRGINIA.

Temperaments are characteristics of mind and body according to which people are classed as bilious, sanguine, nervous or lymphatic.

To the dentist, a knowledge of temperaments is invaluable, both from a therapeutic and social point of view. We will consider the latter first as it naturally comes first.

A patient calls for advice and treatment, suffering, restless and irritable from loss of sleep. It is then that a knowledge of temperamental attributes will greatly assist you and you will

*Read before the Odontological Society of Western Pennsylvania, 1904.

address your patient accordingly, using a commanding, conciliatory or sympathetic tone, as indicated by your diagnosis. It is always better to rub *with* rather than *against* the grain.

If you diagnose your patient to be sanguo-bilious or bilio-sanguine, you are happy, for you know that strength and hopefulness here go hand in hand. The patient needs only a cheerful assurance and all is well. But if instead you get a bilio-lymphatic or nervo-lymphatic patient, your manner will differ widely. In this case you will have to assume an authoritative tone or your patient will keep you waiting for hours trying to make up his mind. His indecision and woeful appearance are pitiful. Patients of a bilio-nervous, sanguo-nervous, or lymphatico-nervous type require sympathy and condolence.

The late Prof. J. Foster Flagg, who studied temperaments exhaustively and made a success of the study, classed them in four groups and called them "dento-temperamental." The first group, bilio-sanguine and sanguo-bilious he calls "excellent."

The second group, lymphatico-sanguine, lymphatico-bilious, nervo-bilious, and nervo-sanguine, he names "good." The third order sanguo-lymphatic, bilio-nervous, sanguo-nervous and lymphatico-nervous, he classes as "doubtful, anxious." The fourth group, those with a lymphatic base modified by bilious or nervous traits, he terms "positively diabolical." He also divides the temperaments into classes, *internal* and *external*. The internal he considers from three standpoints, general innervation, circulation and nutrition.

The internal attributes of the bilious are strength, permanence, endurance, capacity, persistence, good and determined recuperation and great vitality, which is the available working energy of the body and means to a man what a high-steam pressure means to an engine. Every bone, muscle and sinew is well placed, firm and strong.

The external attributes of these teeth are that they are almost the same size from necks to cutting edges, yellowish in color, strongly fixed in the jaw, with strong enamel. They are liable to an acute form of peridontitis.

The sanguine temperament is one of hopefulness. Its internal attributes are volume of nutrition, reliable recuperation both molecular and systemic, and dense structure. While externally they are of dense structure, strongly fixed in jaw, beauti-

ful, translucent, light to dark cream color and the same size from necks to cutting edges. They, too, are liable to an acute form of peridontitis.

The internal attributes of the nervous temperament are comparatively dense structure, good organization lacking perfect solidity, quickness and frequency of recuperations and resistance, rather than reliability and permanence.

While externally the teeth are narrow at the necks and increase in size to the cutting edges, long, brilliant in color from a pearly to a bluish white, with firm sharp cusps, fully formed and seldom worn.

The teeth of the lymphatic are internally bulky, loose of structure and tissue, lacking in strength, tardy and feeble in recuperation and liable to degeneration and relapse. Externally they are large and bulky, not strongly fixed in jaw, of a pale whitish yellow color, with thick necks and cutting edges and bulging bodies.

From the information Professor Flagg gives us of the different temperaments we learn that deep-seated caries in nervo-lymphatic persons cannot be as easily treated as in the nervo-sanguine. As he himself says, "Deep decay in the nervo-lymphatic tooth would call for all the care and skill required in an almost exposed pulp of a nervo-sanguine tooth, and the comparatively simple nearness of decay to pulp of the bilio-lymphatic compares with absolute exposure in the bilio-sanguine."

"What is one man's food is another man's poison," is true. Old practitioners tell us that it is useless to attempt pulp-capping in the teeth of red-haired patients. They knew it from experience and not because of their knowledge of temperaments. Have you ever observed when operating that in some teeth you find the pulp very near the surface, while in others you wonder if you will ever come to it? I do not mean in young people as opposed to old, for we know that with age the pulp recedes and the pulp chamber becomes smaller, but in persons of the same age. A knowledge of the dento-temperamental attributes will teach you which to expect. You have doubtless observed, also, that on the approach of decay the pulp in some teeth will throw out protoplasm to build a secondary dentine to protect the pulp while other teeth do not do so, due to the difference in temperaments. In general this will be the correct explanation and when you

find it otherwise you will have no difficulty in tracing it to systemic disturbances due to a diseased condition.

The prosthetic dentist should keep his stock of artificial teeth in separate groups corresponding to the different temperaments, so when his assistance in providing an artificial denture is requested, he can find immediately the group from which to select, after satisfying himself as to the applicant's temperament. What a convenience it would be if the dental supply companies would do likewise!

Our homeopathic friends understand the value of attention to different temperaments, when, for instance, for the same disease they will give the lymphatic patients one remedy; the bilious another. That physician will be most successful in his practice who can diagnose most closely the temperamental attributes of his patients, for his materia medica will indicate the remedies suited to these same traits.

I therefore claim from the therapeutic point of view that a thorough understanding of temperaments is necessary to success in the treatment of all pathological conditions, even the systemic.

SUB-MAXILLARY CELLULITIS.*

BY A. P. CONDON, M. D., D. D. S., OMAHA, NEBRASKA.

Associate Professor of Surgery, Creighton Medical College; Gynaecologist to St. Joseph Hospital; Chief Surgeon to Mercy Hospital, Council Bluffs, Ia.

The subject of the paper that I wish to present to this society is one upon which very little has been written; some textbooks only briefly described this form of inflammation, while others do not mention it at all.

Sub-maxillary cellulitis, generally known as Ludwig's angina, is an acute phlegmonous inflammation occurring in the loose connective tissue of the sub-maxillary region, between the lower jaw and the hyoid bone. It differs in no way in its pathology from the other forms of cellulitis, such as that observed in the pelvis, in carbuncle, etc.

*Read before the Nebraska State Dental Society, 1904.

It may be caused by the different forms of pus micro-organisms, but it is the streptococcus or the bacillus of malignant edema which is the usual cause, the latter producing the most malignant form.

The method of invasion of the tissues is usually through an infection atrum, but to state, as some authorities do, that it never occurs otherwise, seems to me irrational. There is no reason why a hematogenous infection cannot arise here just as it occurs in other parts of the body, such as in osteo-myelitis, the tubercular infections of bones and joints, and the idiopathic inflammations of the serous surfaces.

The disease may be secondary to injuries, operations, or infections in the mouth or pharynx, or may follow inflammations of some of the cervical glands. It has also been known to develop after fracture of the larynx and hyoid bone. The infection may extend from the ear along the digastric muscle to the sub-maxillary region. As a rule, however, it occurs through the mouth by the way of the duct of the sub-maxillary gland or a carious tooth.

The inflammatory process is beneath the deep cervical fascia, which prevents the involvement of the more superficial structures, and favors the extension of the inflammation to the glottis, which sometimes results in a fatal edema glottidis. If this occurs a tracheotomy must be done to save the patient. The numerous veins and lymphatics in this region become the seat of inflammation, infective thrombi may be formed in the veins, which being carried into the general circulation, produce septicemia and pyemia. The infection may be so intense, especially if caused by the bacillus of malignant edema, as to produce gangrene of the tissues and a rapidly fatal toxemia may follow.

Sub-maxillary cellulitis occurs more often in debilitated individuals, during the convalescence from the infectious diseases and following the operations which necessitate prolonged rest in bed.

The symptoms of a beginning of Ludwig's angina are frequently obscure. Owing to its depth from the surface, its separation from the skin and subcutaneous tissue by the deep cervical fascia, redness, heat, and swelling may not be very evident. At a more advanced stage of the inflammation, the swelling increases and the skin becomes tense and brownish from the inflam-

matory edema and it cannot be moved over the parts beneath. The tongue is pushed up and there is difficulty in speaking and swallowing. The constitutional systems are always very marked. The attack is usually ushered in with a chill, the temperature ranges from 103 to 105, there is vomiting, diarrhea, and sometimes delirium, or a typhoid state may supervene. In fact, all the symptoms of a violent septic condition.

The diagnosis of sub-maxillary cellulitis is usually not difficult. This condition is not likely to be mistaken for a carbuncle, since a carbuncle comes on insidiously, is more localized and we have the subcutaneous tissues and skin especially affected, while in the cellulitis the deeper structures are involved and there is no evidence of the necrosed areas in the skin, which is a diagnostic point in carbuncle.

The simple abscesses occurring in this region would hardly be confounded with Ludwig's angina, as their onset is slow and there is not the marked general disturbances.

We treat a case of Ludwig's angina just as we do a phlegmonous inflammation in any other part of the body. If the case is seen early and there are no marked general symptoms, keep the patient quiet, apply ice freely to the inflamed part, and give opium internally to relieve pain. If, however, the local and general symptoms do not abate but progressively increase, the part must be incised and drained, whether pus has formed or not. We do not wait for the formation of pus in pelvic cellulitis, acute osteo-myelitis, or carbuncle, but when the symptoms point to a progressive septic condition, incise thoroughly, and thus relieve the tension, drain the septic focus and prevent the absorption of the bacteria and their toxins. It is a well-established fact that the absorption of pus or inflammatory exudate is increased by pressure. When the tension is removed, absorption, to a great extent, subsides. Examples of this we observe every day after the draining of an acute septic focus in any part of the body, when the constitutional symptoms are seen to disappear.

In the most violent cases of septic infection we do not have the formation of pus, but in these cases the incision and drainage of the septic focus is indicated just as much, and probably more so, than if we had suppuration.

To the maxim, "*ubi pus ibi evacuatio*," another axiom as important, may be added, when there is an infected focus, the ab-

sorption from which produces grave, general symptoms, that focus should be incised and drained if accessible, irrespective of the formation of pus.

To drain a case of sub-maxillary cellulitis, an incision should be made in the median line extending from the chin to the hyoid bone or transversely across the subinental space. The incision should be made deeply in the inflamed area, but if there is necrosis the tissue should be curetted, irrigated, and a moist antiseptic dressing of bichloride of mercury, one to three thousand, or carbolic acid, one to two hundred, applied.

The general infection or intoxication must be combated and the patient's strength sustained. Alcohol, quinine and normal salt solution given per rectum in probably the best line of treatment. Digitalis and strychnine may be used as a heart stimulant. As a large number of these cases are caused by the streptococcus, the antistreptococcic serum should be used where the general symptoms are severe.

With the past few months, I have seen three cases of Ludwig's angina; two of them being in consultation with dentists, and, I am glad to say, they had made the correct diagnosis.

ADMINISTRATION OF CHLOROFORM.

BY DR E. G. SMITH, D. D. S., ST. PAUL, MINNESOTA.

The safety of chloroform as an anesthetic depends on the manner of administration. If properly given and the chloroform pure, it is the safest and pleasantest to patients of the anesthetics (except nitrous oxide gas, and it is doubtful if that need be excepted).

Many a physician invariably asphyxiates the patient by his manner of giving the anesthetic, resulting in the partial paralysis of the involuntary muscles of the chest and heart; and while the patient is in this critical state of semi-suffocation and strangling. And if struggling, he orders his assistants to hold him down on the table, forcing the anesthetic as fast as possible to overcome, what he is pleased to call, the crazy stage—and if the patient dies he calls it death by chloroform shock.

The cruelty, as well as the danger, of giving chloroform that

way is wrong. I witnessed the condition while in the military hospital; afterwards as a student in the general hospital.

This way is adopted by many physicians, especially in hospitals. The patient is laid out on a table, the head level with the body, sometimes even lower. In this position a person will become more or less asphyxiated if only air is breathed, and the position soon becomes intolerable.

You will notice that in this position it is impossible without an effort to breathe through the nostrils. And to attempt anesthesia, a patient in this position would only produce rapid asphyxiation, and partial, at least, paralysis of the involuntary muscles of the chest and heart. When the patient finally becomes unconscious, a rapid deoxidation of the blood is going on, and every minute he is kept under it counts and results in chloroform shock, to a greater or less extent, followed after recovery by symptoms of general anemia.

PROPER AND SAFE WAY OF ADMINISTERING CHLOROFORM.

Place the patient horizontally on a table as usual. Raise the shoulders slightly. Raise the head forward to the angle of forty-five degrees, so the patient will lay comfortable and can breathe through the nose with ease; but when told to breathe through the mouth, does so with effort. The nasal passage should be examined to see that there is no obstruction to breathing through the nose.

You are ready to administer chloroform without fear of struggling, shock, or chest or heart complication, or anemic sequel, even if the patient is kept for hours under the anesthetic. A person lying in this position asleep can be given chloroform without waking him up.





DENTISTRY IN MEXICO.

BY J. C. HENNESSY, D. D. S., RENO, NEVADA.

Member Nevada State Board of Dental Examiners.

Since returning from Mexico, I have been requested by many dentists to write an article on the practice of dentistry in that republic.

When one goes to Mexico he is regarded with suspicion until he proves he is what he should be and until he convinces the people that he intends giving them good, conscientious work. Many have gone there and have charged exorbitant prices for the most inferior work and have outraged the confidence of the people. Hence their dislike for foreigners until they are convinced that they intend dealing justly with them. When you meet the better class of Mexicans and gain their confidence, life is one round of pleasure, and the average dentist neglects his professional duties for amusement, and when work comes he is not in a condition to attend to his duties. Serenading is a great characteristic of Mexican people and you will be awakened in the small hours of the night by the sweet strains of music outside your window. To the average American this does not appeal, but when one listens to the sweetest of music and realizes the kindly spirit in which it is intended, he must consider it a beautiful custom.

There are only two classes—rich and poor. The poor cannot get enough money out of a month's wages to have a tooth filed with amalgam, and the rich go to the dentist who charges the most, and the more he charges the better he is considered. They want the best and are willing to pay for it.

The foreigner who cannot accommodate himself to all sorts of conditions and who is not flexible enough to change his manners and customs (for theirs are entirely different from ours),

should not go to Mexico, for he will incur their displeasure, and that means starvation. On the other hand, if he is affable and drops into their ways and does not find fault with the country and people, he is taken in, winned and dined, and on entering a residence the owner will say, "Me casa es su casa. Estoy a su orden," which means, "My house is your house and I am at your orders." It is customary to praise everything and you are expected to expatiate on anything shown you—even the lady of the house and the children. A young man calls on his sweetheart and tells her what beautiful eyes she has, and what pretty hair, etc., etc., and as it is the custom of the country they expect it and you are wanting in manners if you do not fall in line and flatter everybody and all they own. If you admire anything they will say, "Take it; it is yours," and they will press it on you. You can take it if you will, but you show good breeding by saying, "Many thanks. I could not think of robbing you of such an elegant thing." I admired a horse once and wanted to purchase him. The owner told me to cut off him arm and take it, but could not think of parting with his steed. I said it was a beautiful animal, and he wanted to make me a present of it. I, of course, refused, and next morning a servant brought the animal to my office for me to take a ride, and informed me that the animal was at my service whenever I chose to take a ride.

The Mexican is very proud and will pay a debt of honor every time, though he mortgage his property to do so.

Should you wish to take a young lady to drive or to a theatre, it is necessary to take the whole family, as you can never be alone with the girl until after you marry her, as, according to their customs, her reputation would be ruined. Should you ask her to go for a walk, it would be the greatest insult you could offer her and one which they are very slow to forgive, and that is the first thing the average American does when he gets acquainted with a girl.

During the winter months the climate is very good, but with the summer comes rain and one is in a constant perspiration night and day, and soon sweats out so that he feels more like a skeleton than a human being. If he is not naturally of a robust constitution, he takes fever and has to leave, or he will have to help fertilize the soil.

A city of 15,000 or less inhabitants will not support a den-

tist for any length of time. He must take trips to other towns, for out of the 15,000 there are more poor than rich people, and you only depend on the rich for work. I trust this will not be an inducement for dentists to flock to Mexico, for many go there and return dissatisfied, and exchange is such that even if you save considerable money there, it is reduced to nearly nothing in turning it into American money.

To do business there you must rent a fine house, for which you will be required to pay a high rent; engage at least three servants, and ride about in a carriage every afternoon, just as rich people do. If you open an office as you do here, you may never get a patient.

The girls are very pretty and pure-minded, and their only ambition is to have a good home and live a retired life, and should the husband mistreat them they will bear the burden in silence.

If the dentist who reads this article cannot acquiesce in all the requirements, he would better stay in Uncle Sam's clime.





SUGGESTIONS

GOLD INLAY WORK.

C. H. Wright.

In building and contouring I am in the habit of using 22-k. gold, such as is ordinarily used in making gold crowns. The clippings from such work may often be used to good advantage. Cut pieces in sizes and shapes according to the case in hand. Have each piece fluxed, being also careful to avoid an excess of this material. Usually small pieces are first adjusted into the deeper depressions, upon which are successively placed as large pieces as will fit the surface without bridging over too much, until finally one or more pieces, which extend from margin to margin, may be adjusted. Then, if a rounded contour is desired, shorter pieces may be successively used from this point. It is a process of piling up a framework or skeleton of these pieces to be filled in and covered with the solder. Any contour desired may readily be secured by piling up properly shaped pieces.

It is my habit before using solder to cover the surface of the matrix as well as possible with the pieces before mentioned and using as broad pieces as can be adapted. By careful observation of these details we are able to avoid any shrinkage. After placing as many pieces of high-grade gold as will stay securely in place, distribute properly shaped pieces of 22-k. solder at such points as will permit a free flowing under and around the pieces.

In using the blow-pipe avoid applying the heat too suddenly upon the gold. Heat the investment thoroughly first, directing the flame gradually toward the gold, and just as the various pieces of solder are about to fuse throw the heat to the part desired to flow first and then to the other parts. Add the pieces of high-grade gold and solder in the manner described until the

inlay presents the proper contour and surface. Immerse in acid and dress it down with suitably shaped wheels, discs, etc., being very careful to grind toward the margins to avoid injuring them by tripping; also, allow the wheels to barely reach the margin.

Now the under surface must be roughened. If, as is often the case, there is a lining of cement over the floor of the cavity, the inlay may be invested in plaster in an inverted position and sharp spurs turned up with an excavator, some of the cement being cut away to accommodate them. If the cavity is without this lining the surface may be roughened by drawing a sharp excavator over the surface repeatedly, or by drilling small holes or carefully filing slots in the surface. Occasionally in cases where it may seem desirable a hollow space may be left by first adjusting a concave piece of platinum foil or pure gold (concave side down) upon the floor of the matrix, avoiding the use of flux on the under side and on the matrix at this point. This creates a cavity which the solder will not enter.

The building of the inlay may then be continued as before described, and when finished the space may be opened liberally through the matrix. Upon insertion this space is filled with cement, thereby greatly increasing the retentive strength of the inlay and practically eliminating its conductivity.—*Dental Review*.

NEW METHOD OF FORMING THE MATRIX FOR INLAYS.

C. C. Allen, Kansas City, Mo.

In making a gold or platinum foil matrix, great difficulty is often experienced in removing the matrix from the cavity without distortion. Often if an approximal matrix has been formed, it requires the greatest care and most skillful manipulation to get it from the mouth into an investment without some change of shape. It has been suggested that, in order to facilitate the forming and removing of a matrix, it be previously filled with some material solid enough that it may be handled.

Many substances have been tried for this, but the difficulty has always been to remove the material without in some way damaging the matrix. Some of these materials can be removed by melting, burning, washing, etc., but at the expense of a good

deal of time and annoyance. Wax or gutta-percha leaves an ash or deposit or some trace of their occupancy behind them. This is of course undesirable, as the minutest trace of alien matter will frequently ruin the finished inlay by causing discoloration, bubbles, etc. After trying all of the materials heretofore used that have been brought to my notice, I began experimenting with gum camphor, the ordinary article procurable at the drug store. I find that this can be packed into the matrix and greatly facilitate forming it, as it has the desirable flow and packs very hard, thus actually swaging the matrix to all cavity walls and enabling you to burnish down the edges until they are smooth and perfectly adapted to the tooth.

One can finish and rub the edges of the matrix of either gold or platinum foil, until he is satisfied that the fit is perfect, without any fear of drawing away at any point.

Very little manipulation with spunk, cotton or bibulous paper is necessary before resorting to camphor. A small lump of camphor can be placed in the cavity and burnished down with a hard pressure, and the result will be surprisingly gratifying. If the matrix is difficult of removal, sharp instruments, such as an explorer, may be inserted in the body of the camphor, and the matrix, camphor and all, with a little care, be removed from a location where it would be impossible to get a matrix out without distortion unless it was filled. The camphor, when properly placed, comes out hard enough to stand all the handling necessary. After the matrix is removed, you can proceed to invest in asbestos or any compound used for that purpose without fear of disturbing the shape of your matrix. But now comes the best part of the whole scheme; if you are investing, using alcohol, all you have to do is to touch a match to the investment, and by the time the alcohol is burnt up, the camphor will have absolutely disappeared, leaving a perfectly clean matrix with no trace of ash or any residue remaining. This is of course the very thing we want. You now go ahead with your work with the assurance that it will be clean. Alcohol is not necessary to the removal of the camphor, as it will burn up without its aid if you should invest with a mixture using water.

In case the camphor has been somewhat contaminated with blood from the gum in making, the whole body of the camphor may be removed, blood and all, after soaking a few moments in

alcohol. In this case, that procedure is better than burning.

With this method pins or staples may be used in your matrix and the camphor packed hard enough around them so that they may be removed and invested at once without any fear of displacement. In fact, camphor lends itself almost perfectly to many uses in inlay and porcelain-work. Pins may be held in position in making the platinum base for molar crowns in this manner, etc. The camphor has no unpleasant qualities to interfere with using it in the mouth.

A little experience will enable one to fill out approximate contours with the camphor, which, even after they have been removed, will prove serviceable in guiding the eye to contour-work.—*Western Dental Journal*.

GOLD INLAY SUGGESTIONS.

W. H. Taggart, Chicago.

For gold inlays, I take an impression with modeling compound and pour into it Mellotte's metal. You can pour Melotte's metal into the modeling compound and not melt it. It will give a good sharp outline. On this I do the first part of the work, turning the difficult angles with 34 gold and then carry the matrix to the mouth.

As to the preparation of cavities, I like to have in the cavity a number of good round depressions that dip down so as to prevent sliding. Take 34-gauge gold and burnish it into all these depressions, and if the gold tears at these points put a little sticky varnish over the place and force a roll of crystal cold into it and you can lift out the matrix in its proper form and flow solder over it.

The point made by Doctor Thompson, and referred to by Doctor Fernandez, about the hollow inlay giving a better chance to burnish the margins after it is seated, I do not think holds good, because there is just as much solder about the part you expect to burnish as there would be if the whole thing was soldered. You ought not to rely at that stage on any further burnishing. The filling should fit before that. You have a larger body of cement in a hollow inlay than in one that is solid, but the actual contact of your inlay with the tooth substance is a big item in the way of retention.

In reference to a one end abutment for a bridge, I have had satisfaction in doing that. An inlay will do if you had one large enough and the cavity is in a pulpless tooth. It would allow the bulk of gold to go into the pulp chamber, and give good retention; but if the tooth is alive I can get retention in the walls, by means of pins of the size of the tooth pin. You can use platinum pins, gauge No. 19, for this work. I sometimes put in four or five in different positions over the surface of the cavity in an accessible place.

A great many dentists make a mistake in using Mellotte's metal in trying to get it thin or fluid-like, so that it will run in fine corners. Mellotte's metal wants to be in a cheesy state, so that you can take it up with a spoon, and not in the melting stage, because if you pour it in the melting stage there is a tendency for it to become globular, where as if you use it as you would take up a handful of melted snow and pack it in, it will give a sharp outline. In fact, it will give the outlines of the marks of your fingers.—*Dental Review*.

A STAPLE CROWN.

R. M. Sanger, E. Orange, N. J.

Dr. F. L. Marshall, of Boston, describes his method, which he calls a staple crown, about as follows: With an enamel fissure bur cut grooves in the mesial and distal surfaces of the tooth just back of the contour, as deep as the fissure bur, then connect these grooves across the tooth by the use of an enamel bur, making this groove as deep as the other two. If the articulation is very close, grind off enough to allow for the thickness of the gold. Then knife-edge your tooth from the cross groove to the edge, as you would an artificial tooth before backing. Next select a piece of platino-iridium or 22-k. gold wire, a trifle smaller than the fissure bur, bend a right angle on the end long enough to fit one approximal groove, take the distance across the tooth between the grooves and bend another right angle in the wire, thus forming the staple which gives the crown its name. Cut the ends of the staple the proper length to fit the grooves and allow the cross-section to be flush with the palatine surface of the tooth. A piece of pure gold is selected, a little larger than the

crown, and one side of the staple is held against it, at right angles, with a pair of pliers, and it is caught with a little 22-k. solder. It is then placed in position on the tooth in the mouth and the gold burnished down to fit the lingual portion of the tooth and the approximal surfaces sufficiently anterior to the staple to allow of burnishing. Remove carefully and solder the staple to the crown around its entire length. Now replace the crown in the mouth and burnish carefully to place, trimming off all unnecessary gold. When a perfect adaptation is obtained, the piece is carefully removed and the outside is overflowed with solder to give rigidity; the entire free edge, however, to about the width of one thirty-second of an inch is kept free from solder to admit of burnishing when the final placing is done and before the cement is hard.

The Carmichael method, as I understand it, is about the same as the foregoing, except that the gold is burnished into the groove instead of using the staple.—*International Dental Journal*.

INLAY SUGGESTIONS.

W. T. Reeves, Chicago.

It is not necessary that cavities be prepared with undercuts and other retentive forms to secure frictional resistance. Close adaptation will provide frictional resistance whatever may be the cavity form. We should have parallel walls when they will permit of proper manipulation to secure a matrix and an inlay that fits perfectly. A perfect fit properly cemented gives perfection of resistance to disturbing stress. A seating form of wedge shape is desirable as it gives positive direction when setting the inlay and secures closer adaptation. A symmetrical form is easily misplaced and allows of inaccurate adaptation. All margins should be beveled inwardly, that is to say they should present a well-defined or knife edge. This kind of a margin will give an obtuse angle to the inlay margin and prevent its fracturing under percussion, or bleaching out the color in firing. Porcelain inlays are friable when the margins are; then they are often made friable by faulty firing. If the porcelain is overbaked it becomes brittle. In molar and bicuspid inlays for proximo-

occlusal cavities, get as much bulk as possible in the inlay and do not fire to a full glaze, just enough to prevent adhesion of food stuffs, etc. I do not believe in baking pins into inlays, as they weaken the porcelain more than they give retentive security. A thin lap-joint will be more likely to slip than a square butt-joint. It may seem strange to hear it, but in my experience I find that inlays which are subject to stress stand better than labial, buccal, or occlusal inlays having surrounding tooth walls. I don't know why this is so, but I have more failures of labial and buccal inlays than all others. It may be that the cements do not get a chance to set so firmly as in other places.—*Dental Register*.

PREPARING DIFFICULT CAVITIES FOR INLAYS.

Jos. Head.

Sometimes we meet molars and bicuspid's that are so badly broken and decayed away under the gum that the preparation of the cavity and the consequent cutting down of undercuts necessitate much sacrifice of tooth-structure. These difficult cases can be made easy in the following manner: The cavity should be prepared as though it were for an amalgam filling. It should be sterilized and drilled. The True Dentalloy of White's made after Doctor Black's formula, should be mixed to the consistence of putty. Creamy cement should then be put into the cavity and all of it that is possible squeezed out by the amalgam. The edges should be cleansed, the mercury squeezed from the amalgam that is left in the hand, and the dried amalgam put into the cavity so as to take out the excess of mercury from the soft amalgam that was first inserted. This method is well known and needs no further remark. When the patient returns for the next sitting, the amalgam filling can be nicely polished, and then all of the filling that shows can be cut out and filled with porcelain. Many of these fillings are now in existence that have lasted four or five years. This method is most valuable in bicuspid's where the mesial and distal cavities meet and divide the two cusps. To fill these two cavities with two porcelain fillings in the ordinary way is frequently not feasible, owing to the difficulty of getting retention laterally. A chance bite will sometimes loosen one from the other. To make these two fillings as one, under ordinary

circumstances, means a great sacrifice of tooth-structure to obtain parallel walls; but if these two are first filled as one cavity with amalgam according to the method described, the cavity for the porcelain can be extended mesially and distally so as to cover all visible amalgam and yet present a cavity most favorable to the formation of the matrix.—*Dental Cosmos*.

GRINDING AND BACKING FACINGS.

Dr. Bush Jones, Dallas, Tex.

In nearly every bridge I see, involving the bicuspid, I find the facings are ground flat, cutting the entire porcelain cusp off, giving, in my opinion, a very unnatural appearance and exposing an undue amount of gold.

I grind and back my bicuspid exactly as for a cuspid, flowing over the backing 20-k. solder, letting the backing extend over the incisal edge sufficiently to insure its not being broken by mastication.

Having placed it in position, I select and swage a cap, using 24-k. gold plate, 36 gauge; this cap I adjust on my bridge, letting the incisal edge of the facing extend into the outer cusp of my cap. I then burnish these as closely as I can, and tack them together with wax, and in some cases I remove this facing with the cap in position and fill cap with 18-k. solder, soldering it also to the facing, but usually I burnish the cap to the facing, and unite them when I solder the parts of the bridge together. In this way I am sure to get a much prettier piece of work, and I am confident that it is equally as strong.—*Texas Dental Journal*.

SOURCE OF FAILURE IN FILLING.

C. N. Johnson, Chicago

In making proximal fillings a very prevalent source of failure is traceable to the imperfect form that is sometimes given these fillings. The normal form of the teeth on the proximal surfaces is such that with ordinary care food may be kept from lodging between the teeth and remaining there for any length of time. This is attained by a rounded form to this surface with a small

and rather prominent contact point, which refuses to hold fibers of food when they are forced between the proximal surfaces in mastication. In the making of fillings they are frequently not sufficiently contoured to reproduce this small rounded contact, and the result is a more or less broad and flattened surface, which invites the lodgement and retention of food in the interproximal space. This retention of food is not only a source of great discomfort to the patient, but it also inevitably leads to recurrence of decay around the filling, besides forcing the gum from the interproximal space and creating a pocket between the teeth, which is frequently the forerunner of disease of the peridental membrane. No matter how perfectly a cavity may be prepared and the filling adapted and condensed, the operation must be considered a failure unless the proximal surface is so contoured that perfect protection is afforded the gum septum, and the retention of food is prevented.—*Dental Review*.

HOW TO SHARPEN GATES-GLIDDEN DRILLS.

Doctor Fernandez.

With the use of a piece of oilstone shaped like a pocket-knife blade (say three inches in length and with a sharp edge) it is a comparatively easy matter to bring in turn each blade of the drill to an edge—examining the drill frequently during the process under a magnifying glass.

It is essential to good work that the stone edge be kept sharp. To accomplish this obtain a piece of hardwood, say three inches long and two inches in width, making sure that it is straight and perfectly level. Now take a strip of sheet lead two inches wider than the wood, but the same length, or longer, so that it may be continued over each end; tack it over the sides and ends (if necessary) to the wood, having adjusted it evenly. Upon the surface thus formed sprinkle some No. 1 emery, and rub the stone lengthwise without oiling or wetting the surface. To keep the stone in perfect condition this process should be continued after every dozen drills. As to the time required for sharpening the stone, three minutes usually suffices.—*Dental Cosmos*.



EDITORIAL

PROFESSIONAL EMANCIPATION.

In this issue is published (*in full*), a paper read at the Indiana State Dental Society, on "Professional Emancipation and How It May Be Effected."

We want our readers to peruse the article, for it contains a number of accusations that are every now and then being brought up in dental society meetings. And do not fail to also read the discussion following the paper.

Among other things Doctor Weirick says.

"Hampered by the most *serious disabilities*, disabilities that I will refer to in detail with your permission, we have *yet* to record the most extraordinary progress. Let us overcome these disabilities, and we will at once take proper rank, and win that professional standing which it must be the aim and desire of every properly-constituted man to have *for his own*."

He refers to commercialism; thrusts at the dental colleges; delivers a violent tirade against dental dealers; scores the dental journals, etc.

He says:

"We are started wrong from the moment we leave college, almost from the moment we enter college, and somehow we never do seem to get right. The taint of commercialism is on us from the very beginning, a *small, pitiful, petty* commercialism. We are yoked at the outset of our careers to a chariot that carries a company of mercenaries, and very few of us ever develop sufficient strength to throw off the yoke."

One would infer from this that commercialism is fostered by the colleges and is being continually crammed into students, so that by the time they leave the college walls they are immune from everything higher than the almighty dollar. Such a condition is not within our observation. We believe the colleges are honest with their students and impress upon them that good,

faithful, efficient operations are the first requisite and then a fee commensurate with the actual worth of such operations is justifiable.

All dentists do more or less charitable work, but it is not expected that members of the dental profession will give all of their time and energy for sweet charity alone, no more than the physician, lawyer, or other professional man, for they need something more substantial than a *thank you* on which to subsist.

And we are not sure but that it would better the profession if the college teachers would say more than they do about the advantages of high fees, for it is the cheap dentist and the quack who are doing more than all else to lower the standard of dentistry in the minds of the general public.

Continuing, the essayist says:

"The young medical student or lawyer goes out under healthy, normal conditions. The young dental student is met at the threshold of his professional life by a band of men who make it their business to put him at once in a mortgaged condition. I refer, as you are no doubt aware, to the agents of the dental supply houses."

Dentistry is different from other professions in that a dentist must possess a dental chair, cabinet, and other things before he can begin practice, while the physician can start in practice without a chair or instruments. But the young physician finds the medical supply man ready, either at the time of graduation or when he opens an office, to sell him a chair or instruments on the installment plan, the same as dental supply men.

Further he says:

"Under the present easy-going system, these agents are permitted to mingle freely with the students inside the college walls, to win their friendship and confidence, and to put themselves generally in a position where they may, at graduation, work the young man just as they please. And what is the result? The graduates are tempted into a business deal that leaves them for years, if not throughout their lives, hopelessly in debt. They are beguiled into buying equipment and supplies utterly beyond their means, and far in excess of their necessities. And *there* is laid the foundation of the evil condition that afflicts the entire profession. It is the beginning of the commercial domination that I believe to be the main source of our inability to rise to a level with the other professions."

* * * *

"If the students we send out of our colleges were protected against loading themselves down with a wholly unnecessary outfit for which they

mortgage, at least the beginning of their careers, matters would soon right themselves and that taint of commercialism, that to my mind is the greatest curse and the greatest handicap of the profession, would soon disappear."

Of course the colleges are blamed. The colleges are blamed for everything, to fit any occasion. When they learn into what disgrace they have fallen, from reading the essayist's censure, you may expect immediately to see warning signs posted in all college halls, corridors and clinic rooms, reading something like this:

This is a free country and nothing in human form is debarred from these public rooms except dental supply men. The special detectives stationed at the several entrances will detain all persons who enter, inquire minutely into their life history, family connections and present occupations. If after a rigid examination it be found that the visitor be not a dental supply man, a dental supply man's wife, or in no way connected with a dental supply house, admit him!

P. S. This rigid examination is necessary. You cannot distinguish a dental supply man by his appearance, for to the majority of people he looks just like a gentleman.

And we may expect to find in the college catalogues a notice somewhat as follows:

We desire to inform parents that the trustees of this college have arranged with the Pinkerton detective force to furnish every student with a bodyguard to protect him from the dental supply men during his three years in college.

And further, we guarantee that immediately after and restore him safely to the arms of his mamma, and graduation one of these hired detectives will protect the young graduate from being "held up" by the supply men a guardian can be immediately appointed.

Again the essayist says:

"As it is, the young dentist starts out in life as the bond-slave of the man or combination that has sold him his outfit, and he spends a large part of his professional career in an endeavor to get out of debt. For the

most part this is a slow, up-hill struggle. In many instances it is a *hopeless* struggle, and the man *begins* and *ends* in debt. In any event, the task hardens the victim and obscures, if it does not wipe out entirely, the humanitarian side of his nature."

Now let us see whether dental supply men are really such human parasites as the essayist represents.

The editor has made inquiry and ascertains that the average graduate does not buy more than \$300 worth of dental supplies to start into practice, and in the majority of cases pays at least one-third cash. The balance is held by chattel mortgage by the firm, but, we understand, no interest is exacted so long as the small monthly or quarterly payments are kept up, and even if the payments lapse the dealers are slow to exact interest.

Past records show that the average "mortgaged dentist" pays off his mortgaged indebtedness within a year or a year and a half. And this is not the experience of one dental depot alone, but of several prominent ones.

What an "up-hill and hopeless struggle" for a dentist to pay off a debt of \$200 in a lifetime. If it were a clerk receiving as much as \$10 or \$12 a week, he could easily liquidate the debt in a comparatively short time. But a dentist—?

Isn't it too bad that "the poor young man" graduate is afflicted with men who are willing to give him the use of their good money to enable him to get started? How much better it would be for this young man to borrow from bank or loan company at seven per cent. or eight per cent. interest, and take chances on a foreclosure at any time should a payment lapse; or, work about at odd jobs until he could save enough money to buy an outfit to start in dentistry?

By this ruinous(?) scheme of the dental dealers, many and many a young graduate has been enabled to start in dentistry who otherwise would have been obliged to wait months and perhaps years before being able to start at all.

In speaking of dental dealers we might call attention of the profession to the part they have played in the development of dentistry and making dentistry what it is to-day, but space will not permit and it is something every rational dentist ought to be able to see for himself.

Speaking of the dental dealers' exhibits he says, among other things:

"At our important conventions the choicest rooms and most desirable quarters are pre-empted by the supply houses. The agents hob-nob with us, and we are, apparently, glad to have them do so. *Can you imagine a medical convention or a lawyers' convention manipulated or controlled by implement and supply men?*"

"I *do* object to the spirit that it breeds, to the domination of our conventions and our actions by men who, if we asserted ourselves and valued ourselves as do other professions, would be very glad to remain in the background on those occasions when we are supposed to meet for the interchange of experience and opinion. The whole system should be torn up, root and branch, and *must* be before we can attain to the *dignity* and *standing* after which we are all so ardently striving."

And finally, as one of the remedies, he suggests:

"That we keep our meetings and conventions clear of the commercial element."

This arrangement would suit no one better than the supply men themselves, and in this regard Doctor Weirick's wish may be gratified. We understand that for some time dental dealers have been seriously considering the advisability of discontinuing their exhibits at society meetings, as the cost of preparing for and the privilege of exhibiting their wares, exceeds the benefits derived.

What effect this would have on the attendance remains to be seen, but indications are that it would lessen it materially. Perhaps not much so far as the "veterans" are concerned, but a diminution in the ranks of the young and promising dentists who are to work out the future of dentistry.

That the exhibition of new dental furniture, apparatus, instruments, etc., and clinical demonstrations of their use, attracts dentists has been shown by dental depot exhibits. A year ago the Dental Manufacturers' Exhibit, held in Philadelphia, attracted one of the largest gatherings of dentists ever obtained at a dental meeting, and The Ransom & Randolph Co.'s recent clinical exhibit, although held but a week after the Ohio State Dental Society meeting, attracted hundreds of dentists from Ohio, Michigan and Indiana.

And the essayist breaks out in another spot and says:

"To overcome this hampering spirit in our ranks will require a strong propaganda, and for this there is only one agency on which we may, with any degree of certainty, rely. That is a sound, far-reaching literature

that will preach *higher professional standards* and hold the fraternity *up* to them. Manifestly it is idle to look to the house-organ for such work. It could not, even if its editors had the inclination, work against the interests of its owners, as it would have to, in order to do any good along these lines." * * *

"We can have neither hope nor promise of real solidity, we can have neither the high rank nor high reputation we merit, until we put forth publications that shall be untrammelled by commercial interests, and that shall be conducted in the interests of the profession and not in the interests of this house or that." * * *

"The physicians have such standard publications as the *Medical Record*, *American Medicine*, the *Journal of the A. M. A.*, and half a dozen other great periodicals to represent them, while we have nothing except house-organs that neither merit respect nor obtain it."

Our present dental journals "neither merit respect nor obtain it!"

God pity the man who can see no good the dental journals have done and are doing for dentistry, whether appreciated or not.

No one is objecting to a so-called independent dental journal. Everybody would like to see a journal published by the National Dental Association, and we feel certain that no present publisher would do one thing to discourage such an undertaking. Probably the first move, however, would be to solicit aid, in way of advertisements, from every one of these disreputable(?) dental dealers the essayist so flagrantly denounces. They could help so much in the maintenance of such a publication and it would be a legitimate use of their money. And while *helping the needy*, it would be different from using it to help the striving, worthy young graduate, for that the essayist looks upon as an unpardonable sin.

Doctor Weirick states that the dental journals are not preaching high professional standards and are not conducted in the interests of the dental profession, and that editors are held under the ban and are not allowed to print anything that reflects on the supply houses publishing the various journals.

Doctor Weirick's article reflects somewhat on dental supply house publishers, and yet even his essay is published word for word as read.

We know of no dental editor but that has full control of the reading matter in his journal and prints what he chooses, regardless of the publishers.

And in what manner are the dental journals not published in the interests of the profession?

Are there any articles written by our prominent men of too high an order or of too great merit to be refused publication in any one of these journals? Emphatically, no! Every editor wants the best of everything for the profession and puts forth every effort to obtain all that is worthy, elevating and useful to the progressive dentist and for the uplifting of the profession. And, for the progress that dentistry has made, much credit is due the dental journals.

We might extend these refutations indefinitely; but, in the language of the Flippo, "What's the use?"

CAN ANY READER IDENTIFY THESE DENTAL OPERATIONS?

The teeth as a means of identifying the dead is becoming generally recognized, and is looked upon as invaluable where the corpse has by fire, or other cause, become unrecognizable.

We present herewith a description of a body of a murdered woman found on Cutter Mountain, December 17, 1904:

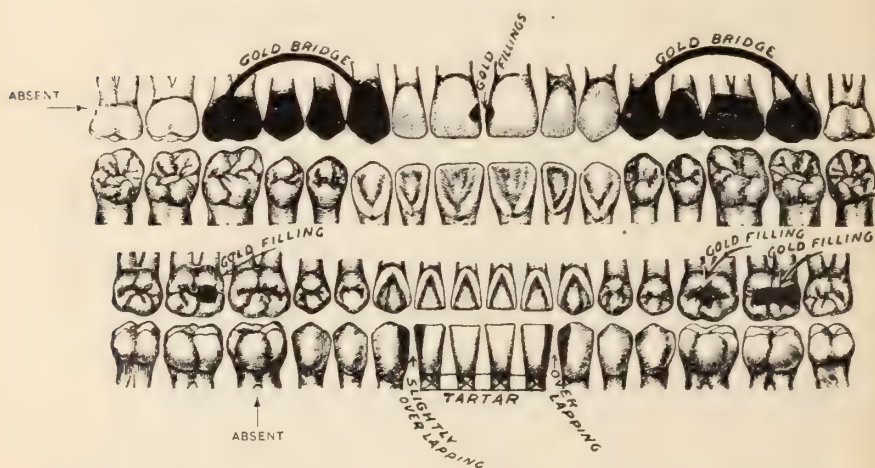
"The body was that of a woman well developed and apparently well kept, but discolored from fire and exposure to the elements. The face, nose, lips, chin, left side of neck, both ears, shoulders and breasts burned so as not to be recognizable.

"She was probably between 25 and 35 years of age, weight about 120 to 130 pounds, height 5 feet 2 or 3 inches, light auburn or ash blonde hair, part of which was burned off; skin evidently fair, with no birth marks or scars showing; small bones, limbs well rounded, hips and thighs large, very small hands, nails clean, long and well manicured; feet small, probably wore a number 2, 2½ or 3 shoe."

The description of the teeth of the deceased, as given by the chief of police, Denver, is as follows:

"The teeth were large, white and chalky. In the upper jaw on the right side the wisdom tooth had never developed; the second molar was present with no fillings. A bridge extended from the first molar to the cuspid. This bridge was of solid gold and worn on the linguo-mesial portion of the crown. The first and second bicuspids being absent, their places were supplied with solid dummies. Two gold fillings of medium size in the mesial

of the upper centrals or incisors. The upper teeth protrude slightly. In the left upper jaw a gold bridge extended from the first bicuspid to the second molar; a peculiarity of this bridge is in the fact that the second molar is made of a bicuspid dummy. The third molar or wisdom tooth on this side is present. In the lower jaw on the right side the third molar or wisdom tooth is present, the second molar has a gold filling in the mesio-occlusal surface. The first molar is absent, evidently for some years, as the space is almost closed. Slight overlapping of cuspid on lateral. Pyorrhea of lower teeth—centrals and laterals—with considerable tartar, showing that they had not been cleaned recently. Left side:—considerable overlapping of cuspid on lateral; all



teeth present on left side lower jaw. First molar large gold filling on occlusal surface; second molar, large gold filling on occlusal extending on to the distal surface; third molar or wisdom tooth undeveloped, that is, partially covered with tissue."

The above diagram may assist some DENTAL SUMMARY reader to identify the body.

All clothing, finger and ear rings, and all other means of identification, had been removed from the body and no trace of same has been found.

The above description and diagram is the only evidence that exists for identification, and if any one can furnish any information, W. S. Reynolds, Chief of Police, Denver, Colo., would like to have it.



NEW PUBLICATIONS

GENERAL CATALOGUE. P. Blakiston's Son & Co.

The publishers have gotten out a neat vest-pocket, leather-covered catalogue of all their publications, and it will be mailed to any one on receipt of 25 cents.

THE PHYSICIAN'S VISITING LIST FOR 1905. Published by P. Blakiston's Son & Co. Full leather binding. Price \$1.00.

This is the fifty-fourth year of publication of this standard book. The dose and other tables given have been thoroughly revised.

QUALITATIVE ANALYSIS BRIEF. By Allard Memminger, M. D., Professor of Chemistry in the Medical College of South Carolina. Philadelphia: P. Blakiston's Son & Co., Pub., 1904. Price \$1.00.

The object of the little book is to make more plain the methods of analysis. The student will find in it a quick and ready method for determining the presence of elements with which he most commonly meets in practice. While intended particularly for students of pharmacy, it is useful to all studying qualitative analysis.

A COMPEND OF MEDICAL LATIN. By W. T. St. Clair, A. M. Philadelphia: P. Blakiston's Son & Co., Pub., 1904.

The author has presented, for the student of medicine, the fundamental principles upon which the medical language is built. In this book the student will find a good guide to the understanding of Latin terms and phrases used in medicine. A limited vocabulary of important medical words is presented and a careful explanation is made of the special technical endings, their formation, meaning and use.

DENTAL METALLURGY, A MANUAL FOR THE USE OF DENTAL STUDENTS AND PRACTITIONERS. By Charles J. Essig, M. D., D. D. S., late Professor of Mechanical Dentistry and Metallurgy, Dental Department University of Pennsylvania. Revised by Augustus Koenig, B. S., M. D., Demonstrator of Metallurgy in the Dental Department University of Pennsylvania. Fifth Edition, revised and enlarged. Philadelphia: Lea Brothers & Co., Pub., 1904.

This metallurgy is so well known by members of the dental profession it seems unnecessary to more than mention the fact that a new edition has been issued.

This edition presents thirty-two new illustrations, and the text has been thoroughly revised where necessary. This is particularly noticeable in the chapter on amalgams, a subject of great importance, which has been thoroughly revised and made to embody the latest investigations in that class of compounds.

As a working guide or book of reference it seems all that is to be desired.

ESSAY ON IRREGULARITIES OF THE TEETH, WITH SPECIAL REFERENCE TO A THEORY OF CAUSATION AND THE PRINCIPLE OF PREVENTION AND TREATMENT. By J. Sim Wallace, D. Sc., M. D., L. D. S., Honorary Dental Surgeon to the West End Hospital for Nervous Diseases, and Assistant Dental Surgeon, National Dental Hospital, London, Eng. London, Eng.: The Dental Manf. Co., Pub., 1904.

This essay on irregularities of the teeth, like other contributions of the author, is a valuable acquisition to the dental literature, and especially to the orthodontia branch. His theory of causation, based upon the muscular influences, more particularly the tongue, due to abnormal development, is certainly worthy of much thought and consideration. Although he submits in confirmation of this theory some very convincing evidence, one can hardly accept it without more or less modification, as there are many other etiological factors he fails to recognize. However, his views and deductions are deserving of much credit, as they present for study and investigation almost a complete new field. His classification is unique and well founded, and in dealing with heredity he seems to have hit upon the vital points from which most sensible conclusions have been determined. In the prevention of irregularities he lays great stress upon the dietetic measures which should be instituted from birth, until after dentition is complete, and believes that many cases of abnormal development could by such means be averted altogether, while others

would be considerably lessened. The treatment suggested adds something to the value of the volume, the perusal of which is necessary to appreciate its full import. F. M. C.

A TEXT-BOOK OF DENTAL PATHOLOGY AND THERAPEUTICS FOR STUDENTS AND PRACTITIONERS. By H. H. Burchard, M. D., D. D. S. Revised by Otto E. Inglis, D. D. S., Professor of Dental Pathology and Therapeutics, Philadelphia Dental College. Second Edition, revised. Philadelphia, Pa.: Lea Brothers & Co., Pub., 1904.

The second edition of this most excellent work will be welcomed by the dental profession. Doctor Inglis has revised the whole text thoroughly to bring everything up to date. In the revision, however, the editor has not lost sight of the original design to make a text-book which may serve as a useful basis of instruction upon a subject which students usually find difficult to comprehend from lectures alone.

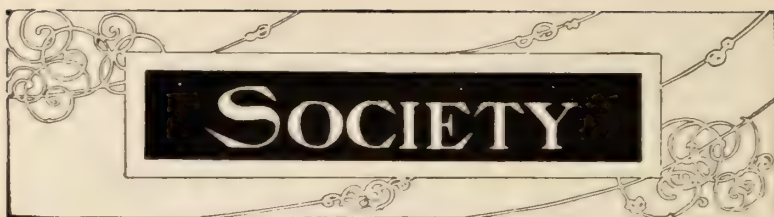
The arrangement of the chapters, with the exception of that on pharmacology, which has been omitted, has been adhered to, and much valuable material has been added. It is probably the most complete work on this subject that we have at present and seems admirably fitted for class-room instruction. Yet, while intended primarily for students, it is a most excellent work for the general practitioner's library.

In the compilation of the book the author has drawn from the writings of the best men, and so condensed the thoughts as to make it a marvel of conciseness. One gets immediately at the meat of the subject, so to speak, and is not confused by a prolix and prosy style so often indulged in by authors.

The text is profusely illustrated by more than five hundred engravings.

It is one of the good books that should be found in the library of every dentist.





JOINT DENTAL MEETING.

The Southern Branch of the National Dental Association meets with the Tennessee State Dental Association at Memphis, Tenn., February 21-24, 1905.

Below is a partial list of the papers and clinics:

Dr. Jules J. Sarrazin, New Orleans, La., chairman, report.

Dr. S. D. Brabson, Knoxville, Tenn., "Prophylaxis in Dentistry." Discussion opened by Dr. N. N. Vane, Atalla, Ala., followed by Dr. Robin Adair.

Dr. Robin Adair, Atlanta, Ga., "A Successful Introduction of Oral Prophylaxis Treatment into Practice." Discussion opened by Dr. N. N. Vane, Atalla, Ala., followed by Dr. B. D. Brabson, Knoxville, Tenn.

Dr. R. Boyd Bayle, chairman, report.

Dr. August F. Sonntag, chairman, report.

Dr. M. F. Fennily, Washington, D. C., report.

Dr. E. P. Beadles, Danville, Va., "A Few Points in Inlay Work."

Dr. S. D. Ronebo, Marietta, Ga., "Gold and Tin and Amalgam and Gold at Cervical Margin as an Excellent Material for Saving Teeth."

Dr. T. T. Moore, Columbia, S. C., "Insulating Deep-seated Cavities."

Dr. B. Holly Smith, Baltimore, Md., title not given.

Dr. J. E. Chase, Ocala, Fla., chairman, report.

Dr. Geo. S. Vann, Gadsden, Ala., chairman, report.

Dr. F. M. Milam, Little Rock, Ark., "Orthodontia."

Dr. W. E. Grant, Louisville, Ky., "Orthodontia, Surgical and Mechanical."

Dr. J. Lewis Walker, Norfolk, Va., "Orthodontia, Successes and Failures."

Dr. H. H. Johnson, Macon, Ga., chairman, report.

Dr. H. K. Luckie, Holly Springs, Miss., chairman, report.

Dr. Geo. W. Dick, Sumter, S. C., chairman, report.

Dr. Benton Lee Thorpe, St. Louis, Mo., "The Masters of Early Dentistry with Lantern-slide Pictures."

Dr. Authur Hynes Fleming, Louisburg, N. C., "The problem of Education."

Dr. W. G. Mason, Tampa, Fla., "Dental Education."

Dr. A. W. Meyer, Chattanooga, Tenn., "Diseases of the Antrum,—Practical Case."

Dr. J. C. Bogue, Harriman, Tenn., "The Education of Present and Prospective Dental Patients."

CLINICS.

Dr. Thos. P. Hinman, chairman, Atlanta, Ga., Dr. J. L. Newborn, Memphis, Tenn.

Dr. Truman W. Brophy, Chicago, Ill., "Surgical Operation."

Dr. F. E. Roach, "Showing New Attachment for Partial Plate and Removable Bridge."

Dr. D. O. N. LeCron, St. Louis, Mo., "Method of Ascertaining True Fusing of Porcelain."

Dr. Burton Lee Thorpe, St. Louis, Mo., title not given.

Dr. L. M. Cowardin, Richmond, Va., "Appliance for Correction of Cross Teeth (Orthodontia)."

Dr. F. L. Wood, Roanoke, Va., title not given.

Dr. T. T. Moore, Columbia, S. C., "Manner of Insulating Deep-seated Cavities."

Dr. A. M. Jackson, Macon, Ga., title not given.

Dr. Joseph Broughton, Atlanta, Ga., "Articulated Piece of Bridge-work."

Dr. Geo. A. Loque, New Orleans, La., "A Full Porcelain Crown and Bridge, Eliminating all Baking."

Dr. W. O. Tolbot, New Orleans, La., "Taking of Plaster Impressions and Making of Casts for Orthodontia Work."

Dr. W. M. Slack, Memphis, Tenn., "Demonstrating Use of Vernon's Gold."

Dr. J. A. Gardner, Memphis, Tenn., "Cavity Preparation, Extension for Prevention."

Dr. J. W. Peete, Memphis, Tenn., "Orthodontia."

Dr. C. E. Hines, Memphis, Tenn., "Porcelain Inlay."

Dr. J. W. Hunt, Memphis, Tenn., "Gold Inlay in Frail Incisors."

Dr. C. H. Taylor, Memphis, Tenn., "Porcelain Without Platinum Base."

Dr. W. W. Brooks, Memphis, Tenn., "Instrumentation Phagadenic Pericementitis."

Dr. C. A. Tavel, Memphis, Tenn., "Combination Filling Finished with Vernon's Gold."

Dr. Eugene A. Johnson, "Exhibition of Somnoform for Extracting of Teeth and Minor Surgical Operations."

Dr. W. D. Gaither, "Method of Attaching Most Incisor to Incisor or Cuspid by Means of Doweled Gold Inlay."

Dr. H. M. Prettyman, Covington, Ky., "Gold Bridge, Demonstrating Original Method of Securing Perfect Occlusion."

Dr. J. L. Newborn, Memphis, Tenn., "Members' Reinforcing Mallet."

Dr. W. C. Gillespie, Nashville, Tenn., "Abby's Soft-foil Filling."

Dr. Walter White, "Dentin Injection with Cocaine and Mounting Davis Crown."

Dr. F. E. Buck, Jacksonville, Fla., "Table Clinic Showing New Flask and Rubber Warmer and Method of Applying Tin-foil Rubber."

Dr. Richards, Knoxville, Tenn., "Practical Demonstration of Inlay—Using a New Apparatus."

Dr. J. C. Bogue, Harriman, Tenn., "Capon Porcelain Front Crown."

From the interest manifested, this promises to be the largest meeting in the history of the two Associations. The railroads have given a rate of one and one-third fare on the certificate plan. The meeting will be held at the Hotel Gayoso; rooms \$1.50 and \$2.00 per day, European plan. Accommodations can be had at other hotels on the American plan, \$2.00 per day. The exhibits of the various supply houses will be exceptionally attractive, embracing everything of interest to the dental profession.

Charlotte, N. C.

CHAS. A. BLAND,
Chairman, Programme Committee.

NATIONAL ASSOCIATION DENTAL EXAMINERS.

The annual meeting of the National Association of Dental Examiners will be held at Buffalo, N. Y., commencing 10 A. M., July 24th, and continuing until adjournment.

The hotel and assembly rooms for holding sessions will be announced later. Arrangements for members in the east have already been made with the Lackawanna railroad, for reduced rates on the fast de luxe trains leaving New York 10 A. M., 6:10 P. M., 8:45 P. M., and 2 A. M.

CHARLES A. MEEKER, D. D. S.,
Newark, N. J. *Secretary.*

KENTUCKY STATE DENTAL ASSOCIATION.

The next annual meeting of the Kentucky State Dental Association will convene at Lexington, Ky., May 15 and 16, 1905.

We anticipate a most pleasant as well as profitable meeting and a cordial invitation is extended to the profession.

Masonic Bldg., Louisville, Ky. *W. M. RANDALL.*
Secretary.

AFTERMATH

PERSONAL AND MISCELLANY.

Dr. J. A. Watling, of Ipsilanti, Mich., is spending the winter months in Florida.

Burglaries.—Dr. E. P. Wheaton, Westfield, N. J., \$75; Drs. Simmons and Clapp, Utica, N. Y., \$25; Dr. W. A. Sherman, Storm Lake, Iowa, \$125.

Montana Dentists.—According to the last report of the Montana State Board of Dental Examiners, there are 154 dentists in good standing in that State.

Midwinter Clinic.—The Lincoln (Neb.) Dental Society will hold a dental clinic in Lincoln, January 17th and 18th. Dentists in good standing throughout the State are welcome.

Injured by Explosion of Vulcanizer.—Drs. G. E. Mann and S. E. Gates, Cincinnati, were severely scalded and injured by explosion of a vulcanizer in their dental office, January 7th.

Fire.—Office of Doctor Babcock, of Perrysburg, destroyed by fire, December 8th. Loss not reported. Office of Dr. A. V. Davis, of Newark, Ohio., damaged by fire December 28th. Loss, \$3,500.

Died from Cocaine Poisoning.—Mrs. Wilman, Winchester, O., had some teeth extracted under cocaine anesthesia and died within a few hours. Supposed an overdose of the drug was administered.

Burned by Acid.—Dr. John Corwin, Chicago, was severely burned December 29th, by sulphuric acid. While making a disinfecting solution the bottle dropped and broke, the fluid splashing over face and hands.

Quonehtacut Club (Hartford, Conn.), elected the following officers: President, Dr. George O. McLean, Hartford; vice-president, Dr. R. W. Brown, New London; secretary and treasurer, Dr. Charles McManus, Hartford.

Dental Thief Convicted.—James Wylie, an old-time crook, has been convicted of burglarizing the office of Dr. J. B. Stewart, of Ham-

ilton, Ohio. Under the verdict Wylie must go to the penitentiary for not less than five years.

Violators in Ohio Prosecuted.—The Ohio Board of Dental Examiners have recently begun prosecution against Charles H. Harrington, Coshocton, and Alvin L. Cain, of Mansfield, for practicing dentistry in the State without a license.

Countess a Titled Dentist.—Countess Helene Von Schweinitz has just passed a most satisfactory examination in dental surgery. Germany has many titled practicing lawyers and physicians, but the countess is the first titled dentist.

Syracuse Dental Society.—At the last meeting the following officers were elected: President, Dr. C. M. Ryan; vice-president, Dr. C. H. Dower; secretary, Dr. C. G. Schamu; reporting secretary, Dr. C. G. Peters; program committee, Dr. G. H. Butler and Dr. A. R. Cook.

Lincoln Odontographic Society Elected Officers.—The new officers are: President, H. F. Helms; vice-president, M. E. Vance; secretary-treasurer, F. B. Damron; board of censors, W. T. Humphrey and P. J. Bentz; executive committee, M. E. Vance, E. G. Antrim, L. P. Davis.

Dental Law Upheld.—The Supreme Court of Washington holds that the law requiring dentists to submit to an examination and secure a certificate from the State Board of Dentistry before practicing the profession is constitutional; also that the State barber law is constitutional.

Dental Depot Clinical Exhibit.—The clinical exhibit of The Ransom & Randolph Co., Toledo, O., held in their spacious dental depot December 12th, 13th and 14th, was even more largely attended than anticipated. It attracted between three and four hundred dentists and was pronounced a complete success.

Institute of Dental Pedagogics.—At the meeting held in Louisville, Ky., in December; the following officers were elected for the ensuing year: President, Dr. S. H. Guilford, Philadelphia; vice-president, Dr. D. R. Stubblefield, Nashville, Tenn.; secretary and treasurer, Dr. W. E. Willmott, Toronto Canada.

St. Louis Dental Society.—At the last meeting the following officers were elected: President, Dr. C. D. Lukens; vice-president, Dr. Harry Hill; second vice-president, Dr. J. F. Austin; recording secretary, Dr. B. E. Lischer; corresponding secretary, Dr. Bland Pippin; treasurer, Dr. W. A. Roddy, and librarian, Dr. C. C. Cowdery.

Fraternal Dental Society (St. Louis, Mo.).—Officers for the ensuing year were elected as follows: Dr. Burton L. Thorps, president; Dr. Ernest P. Dameron, vice-president; Dr. S. H. Voyles, secretary.

and Dr. W. E. Brown, treasurer. An executive committee consisting of Dr. E. E. Haverstick, Dr. W. L. Whipple and Dr. T. G. Donnell was named.

Struck It Rich.—The many friends of Dr. A. O. Yearian, a former dentist of Dillon, Mont., will be glad to hear that he is now on a fair road to become independently wealthy. He is half owner in some newly discovered pottery clay fields in South Carolina and it is estimated that their tract will yield at least \$10,000,000 worth of marketable material.

Permanent Rank Listed for Dental Surgeons.—On account of the excellent results obtained in the health and comfort of men in the Philippines from the work of dental surgeons, Brigadier-General George M. Randall, commander of the Department of Luzon, has recommended that they be given permanent positions and commissioned rank in the medical department.

Married.—Dr. Edward Hohmann, of Nashville, Tenn., to Miss Hannah Umbeck, California, Mo., January 1st. Dr. G. E. Malone, of Dunsmuir, to Miss Lottie Gould, of Roseville, December 30th. Dr. Floyd Lawler, of St. Louis, to Miss Effie Kennedy, Litchfield, Ill., December 21st. Dr. Frank Erwin Rodolph, of San Francisco, to Mrs. Charles Contoit Hibbard, formerly an actress, December 29th. Dr. C. Stanley Smith, Cincinnati, O., was married January 19th, to Miss Mary C. MacDougall.

A Useful Catalogue.—Lea Brothers & Co., Philadelphia, have issued a general catalogue of all medical, surgical, pharmaceutical, dental and veterinary books in the English language. The catalogue includes the books of all medical publishers, and is arranged under subject classification. A more convenient little book could not well be devised, and a copy should be on the desk of every physician, surgeon, dentist or druggist. It is furnished gratis, and a postal card request will bring one promptly.

A Dentist Is a Mechanic.—Such was the decision rendered by Justice Levine, Nashville, Tenn., in a replevin suit for the recovery of a dentist's tools. The suit was Dr. W. L. Dismukes vs. Dr. E. W. Blakemore. The latter had secured a judgment against Doctor Dismukes and had taken a levy on his instruments. Doctor Dismukes held that as he was a mechanic his tools were exempt from levies. The decision was made principally as the result of a ruling of Judge Wilkes, of the Supreme Court, that a barber is a mechanic.

Purchase of Dental Library.—The Board of Directors of Washington University have purchased the McKellops Dental Library, said to be the largest and most complete library of the kind in existence. The library contains between 7,000 and 10,000 volumes and the original valuation was \$25,000. At the time of the death of Doctor McKellops, four years ago, the library was said to have contained every

known dental publication. Doctor McKellops was a member of the Board of Directors of Washington University and connected for years with the Missouri Dental College.

Pretty Calendars.—Have you seen the calendar issued by Antikamnia Co. this year? It is the first and only reproduction of Gatti's "Sympathy," and one of the prettiest this company has published. Sent free. The Resinol Chemical Co., Baltimore, have printed a unique and beautiful calendar for 1905. Six sheets of heavy enameled paper contain on one side six beautiful color designs of babies and children, while on the reverse side are drawings depicting child life, with spaces for the notation of baby's "sayings and doings." It is a work of art. A Resinol wrapper and 15 cents is the price for the calendar.

California State Examining Board Affairs.—The State Board of Dental Examiners of California has filed its twentieth annual report with Governor Pardee. At a meeting held in May last there were eighty-four applicants for licenses. Sixty-eight licenses were granted. At a meeting in Los Angeles there were fifty-one applicants and thirty-six were successful. The Board endorsed the dental departments of the State University, the College of Physicians and Surgeons and the University of Southern California. Several dentists were arrested in San Francisco for practicing without a license and are now awaiting trial. Evidence is being gathered to make other arrests.

"Deadbeat" a Safe Epithet.—That the word "deadbeat," uttered in connection with a financial transaction, may not be slander was Judge Gary's decision when he instructed a jury to sign a verdict of not guilty in the case in which Dr. Charles W. Lichtenberg, of Chicago, was accused of having applied the epithet to Henry Wolf, a Blue Island avenue furniture dealer. Wolf had brought suit for \$10,000 damages. "There is no evidence to show that the plaintiff was damaged in his business as a furniture dealer," said Judge Gary. "If it had been in writing or had referred to his general honesty and the conduct of his business there might be some liability."

Dr. A. H. Sylvester Suicides.—Dr. Alonzo H. Sylvester, Emperor William's American dentist, committed suicide in Berlin, Germany, January 11th. He shot himself through the heart in his bedroom. The emperor was fond of Doctor Sylvester. He created him a royal Prussian councilor, appointed him his private dentist and gave him many presents. Doctor Sylvester was the pioneer American dentist in Berlin, having gone there thirty years ago. He had an extraordinarily large professional income, but had financial difficulties. Recently he had been suffering from a severe attack of grip and for two or three days he had talked incoherently. Alonzo H. Sylvester was a native of Maine. He was graduated from the Boston Dental College in 1871 and soon thereafter went to Berlin. He was about 60 years old.

Died.—Dr. Benjamin Simons, Charleston, S. C., died suddenly from apoplexy, January 4th; age, 44 years. Dr. Davis Lesley Stine, Indianapolis, Ind., died from appendicitis, November 19th. Dr. A. H. King, East Baltimore, dropped dead December 19th. Dr. Horatio Gates Mirich, Brooklyn, N. Y., died from peritonitis, December 23rd; age, 72 years. Dr. Richard A. Kempter, La Crosse, Wis., died of paralysis, December 24th. Dr. Laurence S. Wolfe, Orangebury, S. C., died December 27th; age, 49 years. Dr. Edwin H. Brock, Lynn, Mass., died December 4th, as result of paralytic shock; age, 56 years. Dr. Seth T. Paine, Batavia, died from heart failure, December 10th; age, 40 years. Dr. Frank G. Brown, Palmyra, died January 3rd; age, 84 years. Dr. Brunswick W. Leonard, Westbrook, Conn., died December 19th, of heart failure; age, 52 years. Dr. John A. Osborne, Cleveland, Ohio, died December 14th, of typhoid fever; age, 30 years.

British Soldiers to Have Artificial Teeth.—Deficient teeth are not in the future to prevent the enlistment in the British army of otherwise suitable recruits. Would-be soldiers found suffering from decayed teeth must, however, be prepared to put down a sum not to exceed £3 toward the expense of fitting them with artificial teeth. So it is set forth in a circular by the secretary of the army council. Men who would be discharged from the army as unfit for further service owing to the state of their teeth are to be retained on equivalent conditions, the sum to be paid the dentist to be stopped out of their pay. The British Medical Journal, commenting on this order, says: "It is a step in the right direction. The Napoleonic dictum that an army marches on its stomach has been so long admitted as a military axiom that it seems strange that only now has the effect been given to it. It is the South African war which has largely contributed to make the reform acceptable, a glaring light having been thrown upon the losses which the army suffered through defective mastication, a large number of troops having to be kept at the base or sent home because the state of their teeth made it impossible for them to digest rough food necessarily served to men at the front."

Requirements to Practice Dentistry in the Various States.—In the following States and Territories a dentist must have a diploma from a recognized dental college and also pass the State Board examination: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Maine, Mississippi, Montana, New York, New Hampshire, New Jersey, New Mexico, Ohio, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, Washington, West Virginia, Wyoming. In the following States a diploma from a recognized dental college will permit one to practice dentistry without taking the State Board examination, but a license must be secured from the proper authorities: Kansas, Kentucky, Michigan, Missouri, Nebraska, Nevada, North Carolina, North Dakota, Oklahoma, South Dakota, Tennessee, Texas, Utah. In the State of Wisconsin a license is granted to those

who have a diploma from a dental college demanding a four-year course of seven months each. In Missouri, South Dakota and Utah a State Board examination is granted to any person who has served a certain number of years under a private preceptor. If the examination proves satisfactory, a license is granted, the same as if the applicant possessed a college diploma. In the following States any person desiring to practice dentistry may take the State Board examination, and a license will be granted if the examination proves successful: Alaska, Kansas, Massachusetts, Nevada, Oklahoma, Tennessee, Texas.—Dental Brief.

The Dental Summary a Favorite.—"Send me The Dental Summary for 1905. Can't keep house without it."—Dr. J. R. Osborn, Shelby, N. C.

"The Dental Summary is such a delight I shall never be without it."—Dr. W. C. Smith, Jefferson, Ga.

Recent Patents of Interest to Dentists.—

776833.—Dental vulcanizer, Albert Goebel, Camden, N. J.

776468.—Fountain tooth-brush, Arthur Hosmer, Fort Worth, Tex.

776204.—Dental handpiece, Alson C. Sargent, Des Moines, Iowa.

776834.—Safety-valve and blow-off, Albert Goebel, Camden, N. J.

777536.—Electrical controller, Weston A. Price, Cleveland, Ohio.

776466.—Handpiece for dental engines, Frank K. Hesse, Boston, Mass.

776718.—Matrix-holding device for filling teeth, Calvin M. Beam, Shelby, N. C.

777521.—Detachable tooth-facing for bridge-work of gold plates, Miles L. Leob, Cleveland, Ohio.

766348.—Dental dilating forceps, or appliance for dental or surgical use, George H. Parsons, East St. Louis, Ill.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.





REGULAR CONTRIBUTIONS

THE ADVANTAGES OF THE IMPRESSION METHOD FOR MAKING PORCELAIN INLAYS.

BY ARTHUR E. PECK, M. D., D. D. S., MINNEAPOLIS, MINNESOTA.

To obtain a correct impression for porcelain inlay work, the cavity should be prepared with a view of retention and the removal of the impression; also shaped so as to prevent acute angles for the inlay. If these points are properly considered, it will not be necessary to separate the teeth to obtain the impression.

The Britton Yellow Cement is used for this work. It is not necessary to dust the cavity with soapstone or use any lubricant to prevent the cement from adhering to the cavity, nor is any attention paid to keeping it dry. Quite the reverse; just before the cement is placed in the cavity, water should be forced into the opening so as to remove any saliva which may have lodged there.

The cement is mixed to a consistency that will admit of handling, but before it is taken from the spatula, dip the finger and thumb of one hand into water and moisten the thumb and finger of the other hand, shaking off the surplus. Now the cement can be handled with little danger of its adhering to the fingers, but if it should, a little more water will prevent it.

The important step comes right now. The cement must be thoroughly kneaded between the thumbs and index fingers till all the air bubbles are removed. This cannot be done with one hand; both should be used and the process thoroughly accomplished. In this way, you can make a perfectly homogeneous mass. This is an important step, as the successful impression depends largely on this kneading. When the cement

is of the proper consistency to handle, the matrix is held in position and the usual method of forcing the cement to place is then followed. When the cement is hard enough to remove, first take away the matrix and chip off the surplus cement. A drop or two of water, placed at the margin of the impression can, if the cavity is properly shaped, be worked under the filling by capillary attraction. It will assist materially in its removal. The advantage in this method of taking an impression over those where lubricants are used to prevent the adhesion of the cement, is: It gives a perfectly glazed and absolutely correct impression of the cavity, while if soapstone is used, small particles of the powder remain on the surface of the impression, and when the matrix is struck up, it shows a granular appearance which is caused by the platinum being pressed into the particles of soapstone which remain on the surface. This method also shortens the operation of taking an impression and does away with many of the disagreeable features, such as the use of cotton or the rubber dam and other methods of trying to prevent the moisture from reaching the cavity. After the impression is removed, reinforce it with cement. This is done to strengthen the impression sufficiently to withstand the swaging. A darker-colored cement should be used for this, as it will enable you to see that it does not encroach on the margins of the impression. When the reinforcing cement is hard, the impression is trimmed down till it will admit of the formation of a matrix and then invested in the die-cup, using modeling compound. This trimming of the reinforcement and impression is a very important step. It can be quickly done by using a coarse lathe-stone to remove a major portion of the cement.

The final trimming away of the surplus can be done with a sharp knife, leaving around the impression of the margins of the cavity a line of cement sufficiently thick to protect them. but it must not be so high as to tear the platinum when it is swaged to place. All portions of the reinforcement and surplus cement should be cut away from the impression so as to avoid depressions as they are apt to cause a tear in the matrix; but in case it is difficult to avoid all of them, the tearing of the matrix can be avoided by making a male die of the cement impression,

using modeling compound and forming your platinum, approximately, over this.

It then can be forced to place without danger of tearing. The die-cup and platinum matrix are now placed in the die-cup receptacle and thoroughly swaged, using moldine. After burnishing out all of the folds, remove the matrix and place the loose ring in the die-cup receptacle on top of the die-cup. A small portion of modeling compound is warmed in water and forced on top of this cement-die with the plunger. It is then removed and cooled, after which it is separated. This gives you a modeling compound counter-die of the impression. This counter-die is only intended to hold the cement and is made of modeling compound to save the large mix of cement which would otherwise be necessary. We, therefore, cut off from the compound freely, the portion which comes in contact with the cement-die or impression. This gives us a little extra room for the cement. The matrix is then struck up again, using moldine; now the cement-die should be replaced with the matrix in position in the die-cup receptacle and a mix of cement is prepared the same as per instruction for taking the impression and placed in this modeling compound counter-die, which is swaged to place with a hammer. When the rings are separated, the matrix usually comes away with the counter-die. This is teased loose, and if distorted in the removal, it should be reswaged on the die with moldine. Further adhering of the matrix to the cement counter-die can be avoided by trimming all the edges of the matrix before it is returned. This process gives us a correct counterpart of the impression with the advantage of its being the thickness of the platinum matrix larger than the cavity, insuring a correct form on which to verify the fit of the matrix after the possible distortion caused by handling or baking.

The matrix is then annealed and placed in the cement counter-die. On top of this is placed a piece of unvulcanized rubber rolled together so as to thoroughly fill the space. On top of this rubber, place a dime, and with a pair of forceps or pliers grasp the ring, allowing one of the beaks to rest on the bottom side of the ring, which ought to be protected with a coin, and one of them on top of the coin which rests on the unvulcanized rubber. This will give sufficient pressure to force

the matrix into its exact position. Remove the rubber, and place a layer of porcelain in position, being sure to clear the margins of the matrix with a brush. This is then teased loose and baked, when it is again returned to the cement counter-die and the same procedure followed with the unvulcanized rubber which forces the matrix into its exact position. The second baking can usually be allowed to cover the margins of the cavity without fear of distortion, but the porcelain should be divided so that the contraction will be toward the periphery as well as toward the center. The third bake, which now follows, is usually the last.

The advantage of this cement counter-die will be fully appreciated when once it is used, as it insures a perfect-fitting inlay instead of one the thickness of the matrix smaller than the cavity.

If this procedure is followed closely, the results are sure to be satisfactory.

HONES FOR DENTAL INSTRUMENTS—SELECTION AND CARE.

BY DR. B. BANNISTER, KALAMAZOO, MICHIGAN.

Efficiency in cavity formation requires sharp burs, keen edges, correct forms and classification of sizes, to meet every requirement.

We may purchase edges—for a limited time—when we must depend on our ability with the hone. In the selection of the hone, size, grade, uniform density, keen abrasive action, free from hard or soft spots or other imperfections, and a flat or level surface should be required. One of the most essential requisites a hone should possess is its dimensions, and should not be less than six to eight inches in length, one and one-half to two inches in width, and from one to one and one-half inches in depth, the larger size being preferable. Any dimension less than indicated will prove a plaything, and impractical in honing many forms of instruments. Oil stones are graded as hard, medium and soft, each grade having its special merit. The harder varieties being slower in their abrasive action, the

softer more rapid; more skill and time are required to hone on the hard than on the softer grades. The Arkansas stone has many qualities desired in a hone for dental instruments, from extreme hardness to the softer and more abrasive action. The slow abrasive action of the harder varieties is useful in honing the smaller instruments, or such edges as require only a minimum amount of honing to be put in order.

The Turkish stone is one of the best for rapid and smooth execution, and in many respects superior to the Arkansas stone. Is seldom to be found on the market.

The finer grades of the Washitaw stone, if free from hard spots or streaks, which they are quite liable to have, is rapid and smooth in its work and, if well selected, approximates the Turkish stone.

The Arkansas, Turkish and Washitaw stones are essentially oil stones. While water may and is often used as a lubricant, the hone is kept in better condition and better results obtained when oil is used for lubricating.

An imported water hone manufactured in Austria and known as the Franz Swatey stone is exceptionally good for the finest edges of knives, lancets, etc.

If but one hone is to be used the medium grade will prove the most practical. The hard and medium qualities will have their daily demand. Oil stones improve with age if kept clean and well lubricated and deteriorate if neglected and allowed to dry out for any length of time. A good grade of oil stone will take up oil till fully saturated, when it is in its best condition. If not cleaned after use the oil becomes thickened, forming a coating on the surface, holding particles of steel which become imbedded in the stone. and any attempt to hone on a stone in such condition will result in more of a burnish to the edge than a free cut, and skillful honing cannot be done on a dry and dirty hone. If not in daily use the stone should be left clean or simply moistened in oil. A thorough soaking or cleansing of oil stones is occasionally necessary. Kerosene oil is often used and recommended, while it cleans well, in time hardens a stone and changes its quality. A saturated solution of caustic potash in water is preferable. Care in its use is necessary, from its caustic action and poisonous nature. As a lubricant sperm

oil is considered the best for edges. Resurfacing a stone is necessary whenever any concavity of the surface or other defacement is observable. A coarse grade of emery or sand-paper secured on a flat surface, the stone used as a plane, reproduces the surface, using the finest grades of emery or sand-paper for the finishing. The stone should be clean and free from oil previous to resurfacing, and in use securely fastened in good light and convenient to the chair.

PRACTICAL HINTS OR SELF-INJUSTICE.

BY C. R. BUTLER, M. D., D. D. S., CLEVELAND, OHIO.

We take it for granted that all strive to be just to themselves, yet in the desire to serve our fellows, we come short of justice to them, and thus misrepresent ourselves.

An operator who has the skill should let the result of his effort verify the fact.

Some are in the habit of putting in fillings and leaving them unfinished, expecting to finish them some other day.

There are many chances for such cases to fall into the hands of other dentists who are not overly sparing in criticism, when, if the fillings had been finished, would have been a credit to any operator.

The writer is citing actual facts. Having seen several cases from one of Cleveland's best operators it has set him thinking that such practice is unwise. I have no desire to criticise, but rather to caution against such procedure.



BENEFITS OF ORAL HYGIENE AND PROPHYLAXIS.*

BY L. P. BETHEL, M. D., D. D. S., COLUMBUS, OHIO.

Oral hygiene and prophylaxis is a subject that has been discussed in almost all dental societies and yet the results have not been all that could be reasonably expected. * This may be due to one of several reasons:

First: Negligence on the part of the dentist.

Second: Negligence on the part of the patient.

Third: Negligence on the part of both dentist and patient.

For a dentist to dismiss a patient without having scaled and cleaned that patient's teeth is by no means a rare occurrence.

This dentist may be a conscientious man and aim to give patients his best service and yet overlook this important little duty.

Another dentist may not realize the importance of removing concretions especially where the teeth are not heavily coated, unmindful of the fact that destructive influence does not depend so much on the amount of deposit as upon its distribution and location.

Then there is the dentist who never gives a word of advice to patients regarding personal care of the teeth.

A few years ago at a meeting of the Ohio State Dental Society, I read a paper on "The Dissemination of the Knowledge of Oral Hygiene Among the Masses." In the discussion one prominent dentist said that he did not want his patients to know any more than possible about the care of their teeth, for the less they cared for them the more dental work they had to be done. I hope there are few, if any, dentists in our honorable profession to-day who can feel as this man did. I might add that this same dentist is now an ardent advocate of prophylactic treatment.

Again, the dentist who does not look after the hygienic conditions when making fillings, by restoring the proper contact points and contour and consequently the interproximate space, and occlusion, is not doing his whole duty to his patients.

*Read before the Odontological Society of Western Pennsylvania, March, 1904.

Then there is another dentist who well knows the results of allowing deposits to remain on the teeth and yet wilfully leaves them there. His excuse is that if he scaled and cleaned the teeth for the patient he would feel obliged to do it for nothing and he could not afford to give his time to such service.

I dare say that every man here has heard some dentist express himself in this manner.

After a patient has selected a dentist and resigned the care of his teeth to that dentist, he takes it for granted that the dentist will give them every attention possible for their preservation. And this patient has a right to expect the best care from that dentist. What think you then, of a dentist who will, in the face of this implicit trust, wilfully leave the teeth covered with foul deposits that are menacing not only the teeth, but adjacent tissues, and possibly the health of the general system itself?

We have nothing but condemnation for a physician who wilfully keeps his patient sick as long as possible merely to extract more fees, or who, when the patient has partially recovered and yet needs a tonic to put the system again in a healthy state, fails to supply that need as though he were in hopes the patient would again fall ill within a short time.

Yet, how much better is the dentist just cited? Answer for yourselves.

The patient may be neglectful about carrying out instructions given by the dentist and thus have the consequences to suffer.

Or, both dentist and patient may be at fault. For instance, a dentist may be ever so conscientious in scaling and cleaning the teeth, and to the best of his ability impress his patient with the importance of daily care of the mouth, teeth, and gums, and yet the results prove disappointing through neglect or non-thoroughness on the part of the patient and its non-discovery by the dentist for six months, or a year, or two years, when that patient happens to again return to have his teeth examined. He then probably finds more decay, possibly the undermining of some of his last fillings, the presence of calculus and other deposits about the teeth, and the resulting pathological conditions of the gum tissues.

He performs needed dental operations, rescales and cleans the teeth and dismisses that patient again with more good in-

structions and advice, but that which is most vital in keeping of the teeth and gums in a state of thorough and constant cleanliness is neglected and the result, in consequence, is again failure.

Now this dentist may, with all candor, believe he has fulfilled his mission and done all that he could for the welfare of that patient's teeth, and with this dismiss the case entirely from his mind.

But has he done all that he could to further a constant state of cleanliness in the mouth of that patient? I maintain that he has not.

While what he did was the best that he could do at the time, he did not carry to completion the duties he owed that patient, assuming as he did in accepting the patient, the welfare of his teeth.

Aside from all that he did and advised he should have exacted that that patient return to him in three or four weeks that he might determine whether the teeth were receiving proper and constant care. And when that patient returned, if found that his teeth were being neglected, the dentist should have so informed the patient. The dentist should have then rescaled and recleaned the teeth, not forgetting to make a charge for the work, and have made another appointment for that patient to again return in four or five weeks to have the teeth reinspected.

A few such visits and admonishings will do much toward inducing patients to give their teeth regular and thorough attention and the dentist will have done his duty and fulfilled his obligations to those patients.

Could patients be induced to return once in every four or five weeks to have the teeth thoroughly cleaned and polished, a custom followed by some dentists, the tissues of the mouth and teeth would be kept in the best hygienic condition, carious action be less apparent, and the dentist would have rendered the best service possible to his patients.

For such service the dentist is entitled to a fee commensurate with the time consumed, the same as though performing any dental operation. And I am sure the majority would willingly pay for such service if its importance could be thoroughly impressed upon them.

Now I imagine that some of you are thinking that this is all

well enough to theorize on but that it is the practical results that the dentist wants.

Of course we are all seeking light and proof and it is to the practical side of this question that I desire to call your attention and add my mite of information.

As you are all probably aware, the Diamond Match Company have for a number of years employed a dentist to keep vigilant watch over the conditions of the mouths and teeth of their employes especially those engaged in the "dipping rooms" and other places where phosphorous fumes are generated in these match factories. While the primary object of this step was to reduce, if possible, the cases of phosphor necrosis among match workers, through compulsory care of the mouth and teeth, it has been interesting to watch the general results of the constant application of these hygienic measures as practiced by the employes.

About a year and a half ago, Doctor Knowlton, the examiner, invited me to visit their largest factory at Barberton, O., and inspect the mouths of the employes. The invitation was gladly accepted and since that time I have made a trip to Oshkosh, Wis., to investigate the mouths of employes in the factory at that place for the purpose of verifying what I had seen in Barberton. The four factories in the United States that belong to this company contain more than 2,000 employes, men, women, boys and girls. It is the duty of the dental examiner to make, every three months, a rigid examination of the condition of the teeth and mouth of every employe. This is done systematically and tabulated records made. If any teeth need filling or there are other operations found necessary, the employe is so notified and sent to some dentist to have the operations performed. On returning, this employe must bring to the examiner, from that dentist, a certificate stating that the needed operations have been accomplished and that the teeth are again in good condition. These measures are exacted of employes under penalty of discharge.

The condition of the soft tissues of the mouth, especially the gums, is also noted and necessary instructions as to their further care are given the patient.

Especial attention is given to keeping the teeth free from calcareous deposits and the gums in a normal condition. Every employe is obliged to brush his teeth and gums at least once a

day and use such mouth-washes and dentifrices as may be prescribed by the examiner.

At his next visit the examiner compares the work done, with the last instructions as entered in his record book. If any filling or other operation is found faulty, the patient is returned to the dentist who performed it, with instructions to have it made satisfactory.

By this strict supervision over the oral cavity, phosphor necrosis, which used to be common among match-workers, has been almost entirely stamped out.

Aside from limiting this dread disease, this compulsory prophylaxis has been of great benefit to every employe and an educator of no small proportions. These match-workers soon see the benefits themselves and take pride in their beautifully clean teeth and healthy gums, and compulsory care of them becomes a pleasure.

The employes comprise the poorer class of working people who naturally take little or no care of their teeth.

In inspecting the mouths one is impressed with this fact upon seeing the condition of the teeth and mouths of the new employes. Calcareous and soft deposits and resulting gum inflammation being present.

If no attempt be made to keep the teeth and gums clean and stimulated, the irritating influences of the phosphor fumes but adds to the inflammatory trouble.

Even in the mouths of employes who for a time give daily care to the teeth and then become negligent, brushing the teeth and gums only once or twice a week, instead of every day, the evil effects of the phosphor fumes are seen. The gums soon become inflamed, and congested, and a horrible odor is noticed about the mouth and breath. But where the brush is used diligently once or twice each day, however, and the teeth kept free from calcareous and other deposits, by the examiner, the gums present a normal pink tint, are firm to the touch and have every appearance of perfect health and tone despite the irritating tendency of the phosphor fumes that are constantly inhaled.

Now, if we find dental organs scrupulously clean, gums of a normal tint, firm and healthy, and clean mouths, where these prophylactic means have been employed, even in the face of such unfavorable surroundings and among this class of people, what

can be accomplished among patients in a general practice if they can be induced to adopt and conscientiously follow out such prophylactic measures?

The examiner, through observation, says he is confident that the influence of oral hygiene is farther reaching than ordinarily imagined. Since its compulsion among these employes it has been a noticeable fact that fewer days are lost through sickness. He believes it has an influence on the digestive tract and that better general health is maintained. Also it has been noticed that during epidemics of disease, fewer employes are affected by prevailing maladies than before these prophylactic measures were adopted.

After seeing such remarkable results in the mouths of a class of people who naturally give little or no attention to the care of the mouth and teeth, I was curious to see the results of constant care of the teeth of patients in general practice.

By invitation I visited Dr. D. D. Smith, Philadelphia, last spring, to see what he was doing for his patients in way of prophylactic treatment.

He gave up the better part of a day, from practice, to show me patients for whom he scales, cleans and polishes the teeth regularly once a month.

The results of such treatment were striking, especially in mouths of patients who had previously been afflicted with severe pyorrheal conditions.

Where pyorrheal trouble had been previously treated, excessive absorption of gum tissue in many cases was still noticeable, but the gums were tightly attached about the teeth, of a pink healthy color, and of firm texture, showing perfect normality with exception of gum tissue lost through pyorrheal absorption, and even that had been partially restored.

Although a number of these cases had been treated years before, the gums, through this monthly cleansing and general care, retained their tone, with no signs of a return of the former disease.

This alone furnishes a valuable lesson for the general practitioner of dentistry. The results of Doctor Smith's prophylactic treatment are all that could be desired and greater than ordinarily would be expected. All the patients had beautifully clean teeth and gums; wholesome, clean mouths; and there was an en-

tire absence of that disagreeable odor noticeable from unkept mouths.

These patients invariably stated that their general health was better since they began this systematic treatment and gave their teeth and mouth daily attention at home.

With facts like these cited in this paper, who can truthfully say that oral hygiene and prophylaxis may be all right in theory, but that it is not practical?

Gentlemen, the members of the dental profession are not doing their whole duty to patients if they neglect this important service.

It is practical; it is possible; and patients can be readily educated to know its advantages, accept your services, and be willing to pay good fees for an operation so beneficial.

And the results of such procedure and practice will redound more to the dentist's credit than he has ever before imagined.

DISCUSSION.

DR. G. W. GAGE:—Doctor Bethel has seen the result of oral prophylaxis, he has covered the ground very thoroughly, better than I could have done myself, but I want to add a little more to what he saw at Philadelphia. I spent two days there seeing the patients in Doctor Smith's office.

The first half day I was in Philadelphia was spent with Doctor Smith, viewing this exhibition. I saw why I was not able to practice prophylaxis. In the first place, I did not have the instruments. I saw as much done in one-half hour as I had done in three hours in my office, and it was a revelation.

I spent one day looking at the patients. I should judge that I saw between forty and fifty in that time. Their mouths were exposed for criticism. Every mouth was in the best condition except one, and that mouth was criticised so severely in my presence, and in the presence of several other doctors, that I think that man will remember it as long as he lives. Why was it criticised? Simply because the man was not obeying orders.

What has been my experience in my private practice of prophylaxis? Simply this: The patients are only too glad to submit to prophylactic treatment. You do not have to urge them to do this. When patients ask you, "Doctor, which tooth powder do you recommend?" or, "Doctor, how often should I have my teeth cleaned?" they are asking your opinion. The patients are ready to pay for it after the second treatment, for it is a revelation to them. They do not call it *cleaning* the teeth, they get into the habit of asking you *when are you going to treat their gums?* It makes you feel queer to have a man ask you to clean his teeth after that.

DR. S. M. STAUFFER:—I have been following this method of treatment for some time, especially since Doctor Smith was here about two years ago. I was not down at Philadelphia, but from what I have done myself, I can imagine what the patients' mouths look like. I am well satisfied with what I have done.

Doctor Gage spoke of the willingness of the patients to have this done. Some patients are and some are not. With some it requires a good deal of talking to impress on their minds the importance this work is to them. What can be done is remarkable, and you will find that results are most gratifying.

I have had patients come to me for treatment of teeth that are very sensitive at the gum line. They want to know what to do. If you do not use the prophylactic treatment it is a question to know what to do in these particular cases. If you practice prophylaxis, you will obviate all of these conditions.

I have practiced it myself, in my own mouth now for about nine months. I had a number of sensitive places, and now I would not know that I had any teeth, so far as sensitiveness is concerned. It is very severe in some cases, and the patient will rebel, but when one is persevering, after a few treatments, he will be back again, willing to have the treatment. I think some of my most appreciative patients are those who came to me with their mouths in the worst condition you could imagine.

DR. M. S. BURNS:—I think there is no room or necessity for argument. I have asked patients as to the result, and they have said they would rather pay three times the amount of money and keep their teeth from decaying, than a very small sum for repairing. In regard to this, some time ago a patient came to me for cleaning the teeth, as she expressed it. I went over them, they were in very bad condition. In time I sent her my bill. When she received it, she asked me if I had not made a mistake. I told her I had not. She said, "Very well."

I received a check for the amount. A few weeks ago a friend of mine in the city called me up and asked me if I had not had this lady for a patient. I asked him for what purpose he wanted to know. He said he wanted to know what I had charged her. I told him, and a few days ago he informed me he had sent this same lady a bill and she had paid it cheerfully, although the amount was almost five times what I had charged her. I suppose it was because city work is better appreciated than country work.

DR. O. L. HERTIG:—Prophylaxis nowadays is a great thing. Now you clean your teeth as often as you hear running water. The trouble is our patients give their teeth a cleaning in the morning, eat their breakfast, and go through the day without cleaning them again. Along about eleven o'clock fermentation sets in. Then is the time to clean the teeth, and if you do this there is nothing remaining to produce fermentation. Then you should clean your teeth immediately after lunch, an intermediate cleaning at four o'clock, the last one before you retire.

If you can get a patient to do this, the result will be astonishing. It is worth trying, but you can't get one out of fifty to do it. If you can you will produce results you can't produce in any other way.

DR. J. A. LIBBEY:—I just want to give you my experience I had some years ago before I came to Pittsburg.

I was practicing in East Liverpool, Ohio, and a traveling man came to my office to have me clean his teeth, and I told him to take a seat and I would examine them. I looked them over, and said to the man, "If you go home and use plenty of soap, some polish powder and a scrubbing brush, and clean out your mouth, I will do something for you, but in the condition in which your mouth is at present, I will not touch it." Said he: "Do you want to insult me?" I told him it would be impossible to insult anybody with a mouth like that. He got up and walked out of the office, and I did not see that man for about a year. One day he came into the office, smiling, and said: "Doctor, will you examine my teeth?" I recognized him at once, and said: "Yes." I never saw a nicer, cleaner mouth. His teeth and gums were healthy. When I saw them before they were diseased. Says he: "I thought I never was so insulted as I was that day, but I deserved it."

Several of his teeth needed filling. I made an appointment to fill them for him. I saw that man afterward frequently, and he always called my attention to what I had said to him. Now, I don't advocate that in all cases, to speak that way to a patient, but when a patient comes with such a filthy mouth, I think any dentist would be justified in doing so.

I was glad to hear this report of Doctor Bethel's. I have known of that work for a long time. There is nothing we can do for our clients that will have better results.

DR. H. H. HARRISON:—I think Doctor Hertig's suggestions will give better results if they are followed than anything I know of. In some extraordinary cases other treatment will be necessary, but I think if the treatment as suggested was followed it would not be necessary to have an extraordinary treatment. The man of today is not eating the foods that he should eat, and the result is that his teeth are not getting the exercise they should get to put them in an absolutely good condition.

I am convinced that the thorough cleaning of the teeth is all that is necessary, but with some patients you have to use more thorough treatment to get the results.

DR. W. A. PRICE:—I am very much interested in the work that these gentlemen are doing. This is a treatment of the diseases of the mouth and teeth that do not ordinarily come under the classification of prophylaxis. How many times have we all had patients come with what you might call an abscessed tooth, when all the time the patient was suffering from the effects of the presence of pus, and I believe that in twenty-five years, or even less than twenty-five years, that the dentist who is not able to cure by prophylaxis will not be considered up to the standard of the times.

DR. C. B. BRATT:—I think the question resolves itself into friction; the proper amount of friction on the gums. I don't think you can have a healthy condition of the mouth without friction.

The question has arisen in my mind, since Doctor Smith has introduced his liberal use of the pumice, whether that is the proper thing to do, when the conditions are bad.

It may do, but by using the pumice often we destroy the smooth surface, that natural polished surface, of the tooth, and when this is destroyed they require scouring with the pumice often, and this continued for several years will show considerable abrasion of the tooth structure.

DR. S. M. STAUFFER:—I have a word or two more to add. Some months ago I started my patients in on this work themselves. I told some of my friends about it, and they thought it was a good idea, and I think the results are very good.

DR. I. N. BROOMELL:—I think there is one feature of this treatment that has not been properly considered, and that is the results which will follow the treatment in time. Of course it is yet in its infancy, you might say. I am not in favor of the method myself. In the first place, because I believe it has a destructive feature. Doctor Smith claims the reverse. He claims that instead of the friction destroying the enamel, it gives it a re-foundation, which in my mind, is most absurd. I believe also that what the last speaker said is a very bad practice, to instruct the patients to do this work themselves. I can recollect one or two patients of mine that if I were to tell them to do this themselves, they would spend all their spare time at it.

I believe also, that while in the first place this heroic treatment may be beneficial to the tissues, it eventually will be destructive. At any time you are likely to destroy some of the physical fibres of the tissue. I believe the question of cleaning the teeth as Doctor Hertig suggested, is a good one, and I think the results will be better from that method than from keeping up this method.

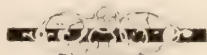
DR. G. W. GAGE:—I want to mention a case that happened to me during the last two years.

A child, seven years of age, with the inferior bicuspid undeveloped, had been under my care for two years. One day it was brought to my office with the toothache. I think I would rather had given one hundred dollars than have that child have the toothache. The child was brought to my office three times, and I could not find out what was the matter. I could not find a cavity any place. Finally, I became desperate when the child was brought to my office again. The same old thing happened, but I found some exposed dentine on the surface on the left inferior cuspid and it was very sensitive. I took some pumice-stone and cleaned this surface thoroughly. After a few treatments the sensitiveness passed away.

DR. C. C. TAGGART:—This subject of oral prophylaxis is very dear to my heart. Owing to my relationship to Doctor Smith it has been my pleasure to see and know considerable of his wonderful success, not only in absolutely curing pyorrhea alveolaris, but the prevention of nine-tenths of the decay that would otherwise be found. I really believe in this matter of oral prophylaxis (the first great step in preventive dentistry). Doctor Smith has done more for our professional work than any other one individual. If I understand Doctor Harrison correctly, he believes the only instrument necessary in oral prophylaxis is a good tooth-brush. The brush is a good thing as far as it goes, but out of the dentists in this room, I venture to say I could find, with a prophylaxis instrument, deposits in ninety-nine per cent of the mouths which could not be removed with a brush. You are familiar with seeing gums attended with a purple color and tendency to bleed. You know what that means, and I ask you, will a tooth-brush remove the cause? As for the fear of destroying the enamel by polishing the surface of teeth with finely-powdered pumice wood sticks until the foreign substances are off, you do no more destruction than you would by scrubbing the floor of this room with soap. You not only do not destroy the enamel, but improve it by the removal of bacterial plaques, and other secretions and excretions which we find on the surface of the teeth.

DR. O. L. HERTIG:—I have practiced this system of prophylaxis in my own mouth for the last twenty-three years. I have been a crank on the use of antiseptic mouth-washes ever since the first antiseptic mouth-wash came on the market, and there has never been a week that I have not used an antiseptic mouth-wash, with what results? I used to have a great deal of trouble with the cavities in my teeth, but the cavities are still there, but not any larger in size.

In regard to what Doctor Gage said about the infant's teeth, making smooth the surface with the pumice-stone, that was the logical method. He had good results from the way he applied this treatment. I think that Doctor Smith has done as much, if not more, for us than any man that I know of.



AILMENTS. SIMULATING DENTAL DISEASE BUT NOT DIRECTLY CONNECTED WITH THE TEETH.*

BY DR. C. A. BARNHILL, D. D. S., INDIANAPOLIS, INDIANA.

It requires a complete divorce of thought from the usual trend of dentistry, to write upon the subject I have given you to-day. I will not advance anything new, only those ailments with which you may have to contend at any time in your practice. You may find the paper long and tiresome, but I hope you will at least gain a few points.

THE EYE.

The oculist, upon examination for ocular disorders, will look carefully to the teeth, remote as they may first appear to be from the eye. On either side of the spine along its whole extent we have sympathetic ganglion anastomosing freely with all the spinal nerves, also extending upward and anastomosing with the ganglion of the head, which communicate with the cranial nerves. The spheno-palatine ganglion sends branches to the mucous membrane of the nose, and is in direct communication with the Gasserian ganglion.

The otic, ophthalmic, maxillary and superior and inferior ganglia are united, thus giving a rich field for transmission of any irritation. Hence any sensitive surface under pathological conditions, may give rise to reflex disturbances on account of this complete system of nerves and their connecting ganglia. Then it is true that ocular disorders may arise through caries and other ailments of the teeth, namely, amblyopia, amaurosis, and in some cases vision reduced which can be restored after treatment of the teeth. And further, there are cases of spasmodic winking caused by the teeth. It is a well-known fact that with the southern negro, "He will lose his vision if his eye-tooth is extracted."

THE FAUCIAL TONSIL.

If your olfactory nerve is sensitive to the odors emanating from the mouth, you doubtless have detected such coming from the mouth of your patient which are not pleasant. There are

*Read before the Indiana State Dental Society, June, 1904.

many people who go to a dentist, simply because they have a bad breath, again there are many who go to a doctor to have their stomachs treated because of a bad breath. There are odors coming from the mouth which do not originate in either the teeth or the stomach, but from the faucial tonsil. You are all more or less familiar with the location of the tonsil as it lies, one on either side, between the anterior and posterior arches of the soft palate.

A tonsil consists of an elevation of the mucous membrane representing fifteen or twenty orifices, which lead into crypts or recesses, in the walls of which are placed nodules of adenoid or lymphoid tissue. These nodules are enveloped in a less dense adenoid tissue which reaches the mucous surface. The surface is covered with stratified squamous epithelium, and the subepithelial or mucous membrane proper may present rudimentary papillæ formed of adenoid tissue. The tonsil is bounded by a fibrous capsule. Into the crypts open the ducts of numerous mucous glands. With some persons the tonsils become enlarged at intervals, and during the process of enlargement these crypts are also enlarged and the depth increased. The epithelium of these ducts is shed into them, and particles of food are, by the movements of the throat, forced into the channels, and these substances, constantly warm and moist, rapidly decompose. The position of the tonsil is such that at each expiration this foul odor from the decomposing mass is carried out, and any person within range of that breath will detect it if their smelling power is normal. Highly flavored and perfumed mouth-washes, chewing-gum, Sen-Sen or anything you please will not kill this odor, for it will float on and above any of them. You who have not paid particular attention to the tonsil let me advise you to do it now.

Upon looking at a diseased tonsil you can readily see these little crypts, some in the form of a slight depression, others rather elongated and in some of them you will notice a yellowish, caseous mass in the form of a ball just at the orifice. With a straight spoon-excavator inserted into the orifice and beyond the mass, with the right movement you can dislodge it and bring it forth for closer examination. If you will mash it between the fingers, you will get the genuine odor which will teach you not to be mistaken in the diagnosis of foul breath from diseased tonsils.

In cases of this sort advise the patient to consult a specialist. He will treat these little crypts or possibly remove the tonsil bodily. The function of the tonsil is, first, to assist in deglutition by helping to moisten the bolus of food as it passes downward; second, as a lymph gland, of which we have many others in the body, for the manufacturing of white blood corpuscles. You see that its function is so light that the specialist will not take that into consideration if he sees fit to remove it. Ill results sometimes occur from hemorrhage and also from the instruments in the hands of a careless operator. I can personally vouch for the statement that the complete removal absolutely cures foul breath caused by diseased faucial tonsils.

THE EAR.

In order that we may understand why we have ear trouble caused by the teeth, I wish to call your attention to the connection of the nerves of the ear and the teeth.

The nerves composing the group now called the tympanic plexus are brought into intimate relations with those of the throat, mouth, etc., through branches arising mostly from the otic, petrosal and sphenopalatine (Meckel's) ganglia. By means of the otic ganglion, the inferior maxillary, or third division of the fifth pair, is connected with the plexus, while from the petrosal ganglion of the glossopharyngeal nerve arises the tympanic nerve, which constitutes the largest portion of the tympanic nerve supply. Connection between the tympanic plexus and the second division or superior maxillary branch of the fifth pair exists also by means of the Vidian nerve through the sphenopalatine ganglion.

The carotid plexus of the sympathetic is connected with the glossopharyngeal by means of the small carotico-tympanic branches of Jacobson's nerve, communication between the ear and the superior cervical ganglion of the sympathetic is thus established. Owing to these intricate nervous connections, is it any wonder that we have disturbances arising in various organs of the body such as the heart, stomach, genito-urinary system, brain, etc., into which the ear is brought into sympathetic relationship; the teeth, the soft palate, and the membrane lining the oral, nasal and pharyngeal cavities are thereby in direct relationship with the drum-head, the tensor tympani muscle, the lining membrane of

the tympanic cavity, and the external auditory canal? When we consider this sympathetic nervous relationship between the ear and the teeth it is not difficult to see that irritation from the latter would be a source of annoyance to the organs of hearing, neither is it difficult to see that dentition, the difficult eruption of the wisdom-teeth, the existence of decayed or otherwise diseased teeth and the wearing badly-fitting artificial dentures, should frequently excite a reflex disturbance in the organs of hearing.

The surgeon has called attention to the fact that dentition in young children generally caused more or less irritation in the external auditory canal. Such pain in the ear would, if recognized early enough, be quickly relieved, in some cases by a free incision into the gums. These conditions should be looked to early, for it is well known that in cases of long standing, the nerve-tension will become disturbed and reflex phenomena be easily excited. In this way progressive catarrh of the middle ear with consequent deafness, may be produced, so slowly, indeed, as to be hardly perceptible to the patient. The eruption and decay of the teeth, aside from the local irritation arising therefrom, frequently causes sympathetic disturbances in children of low vitality. The latter is likely to occur from the time the two lower central incisors appear and may continue until the completion of the first dentition. If these teeth are allowed to remain in over time or even the crowns after the roots are absorbed, are also causes of aural irritation.

Second dentition is also likely to be followed by irritation of the ears. The eruption and rapid decay of the sixth year molar, the pre-existing irritation of the first dentition aroused again, and also at this period the strain from mental overwork and worry has an important bearing upon the case.

In the third dentition or cutting of the wisdom teeth it is not unusual to witness great and general disturbances. Abscesses of the gums, necrosis of the jaw-bone, attacks of tonsilitis, and some of the most intractable cases of middle-ear inflammation are seen at this period, the latter frequently leading to more or less loss of hearing. Dentition has much to do in the causation of chronic catarrhal inflammation of the middle-ear, owing to the sensitive condition of this organ during the different stages of the eruption of the teeth, yet it is probable that the long-continued protracted reflex irritation, due to the diseased state of the

teeth themselves, is a much greater factor in the production of this form of aural trouble.

In a review of the records of some eighteen hundred cases of ear disease coming under his observation, Sexton found that fully one-third of them originated in or were more or less prolonged by a diseased condition of the teeth, and in most instances the aural affections were especially severe. The male sex was somewhat in excess to the female, though not much, and in both men and women the greatest number were affected between the twenty-first and fortieth years. In these cases the presence of teeth with putrescent pulp and concealed roots were always present.

Among other things given as a source of irritation to the ear is the amalgam filling, the mercury being likely to be set free and cause toxic effects. Also, poorly-adjusted crowns and ill-fitting dentures, which are not kept clean and may have been made over some remaining roots. And again the vulcanite being non-conductor it is liable to cause a hyperæmic and congested state of the mucous surface. The harmful results of retaining diseased teeth in the mouth without giving them attention cannot be over-estimated, and this is especially so of persons prone to catarrhal conditions of the upper air passages. The ear, in a state of continued hyperæmia due to this reflex irritation, is much less able to withstand the effects of such outside influences.

THE MAXILLARY SINUS OR ANTRUM OF HIGHMORE.

In order that the clinical phenomena met with in cases of inflammatory affections of the accessory nasal sinuses may be readily understood, the surgeon and the dentist should possess a thorough knowledge of these parts.

These air spaces may be conveniently divided into two groups, first, the anterior group, consisting of the maxillary and frontal sinuses and the ethmoidal cells; secondly, the posterior group, consisting of the posterior ethmoidal cells and the sphenoidal sinus. While these sinuses are very closely connected and have to do with each other, the dentist does not have to deal directly with any except the maxillary sinus, the antrum of Highmore. At birth the antrum exists merely as a slit-like indentation upon the outer wall of the nasal chamber. It presents the fol-

lowing measurements in a new-born child; the vertical diameter three mm., transverse diameter two mm., and the antero-posterior diameter seven mm. The growth of the body of the superior maxillary takes place by the formation of a mass of cancellous or spongy bone between the alveolar process and the orbital plate.

Coincident with the increase in the cancellous tissue, a process of absorption apparently takes place on its nasal and orbital surfaces, thus causing an increase in the size of the antrum. This simultaneous process of growth and absorption continues until about the twenty-fifty year of life. At that time the antrum reaches its complete form and its measurements are about one inch transversely and one and one-fourth inches in a vertical direction.

The antrum may be described as having a roof, a floor and three walls. The floor of the sinus in which we are more particularly interested, is formed by the alveolar border of the superior maxilla and bears a very close relation to the teeth. The layer of spongy bone between the roots of the teeth and the floor of the cavity varies in thickness in different skulls and sometimes upon the two sides of the same skull. The inner or nasal wall of the antrum is of considerable importance. It is convenient to subdivide it into an upper and lower part by the inferior turbinated bone. This plate is thinnest immediately below the attachment of the turbinate, and in that situation offers the least resistance when a puncture is to be made, and gives an opening on a level with the floor of the sinus. The natural opening to the antrum is situated immediately below the roof and does not permit of drainage in inflammatory conditions of the antrum.

Let us go back again for a few moments to the floor of the antrum. Direct communication between the root of the tooth and the mucous membrane of the antrum, due to defects in the bone, is not often met with, but quite often small elevations are formed on the floor of the sinus by the projecting roots covered with a thin layer of bone. The floor is, as a rule, thinnest above the first and second molars, so that in the operation of opening into the sinus, the surgeon meets with least resistance in these situations.

The relation of the teeth to the sinus is of great practical importance, both to the dentist and the surgeon. Owing to the variations which occur in the size of the cavity, the relationship

is not a constant one. When the cavity is of unusual size the cuspid root lies below the floor of the sinus, but this is an exceptional condition. Occasionally the operator will enter the antrum through the socket of the first bicuspid. The second bicuspid and the three molars, when the sinus is of ordinary dimensions, are in relation to it, but in a considerable proportion of cases the second bicuspid lies just in front of the floor of the sinus. Again, in an unusually small sinus only the second and third molars are in relation to the floor.

CAUSES OF ANTRAL SUPPURATION.

It may be caused by infection from the nose during some acute specific fevers such as typhoid, pneumonia, measles and scarlet fever. Influenza has also proved a great cause in suppuration of the antrum.

The nasal mucous membrane is continuous with that of the other cavities and catarrh of the nose is easily extended into them. By understanding the intimacy of these connections you can readily see why there is such a frontal discomfort when we have a cold. The secretions are greater and compelled to remain to a certain extent confined in the cells.

When there is insufficient drainage these secretions are compelled to remain under tension, an increase of inflammation may result, and if certain microbes gain access while the mucous membrane is in an inflamed state, suppuration may occur. If after the suppuration of some one of these cells, for instance, an ethmoidal cell, the pus may find its way into the antrum and even into the frontal sinus.

It was formerly thought that all antrum trouble was caused from the teeth, but it has been found that organisms associated with syphilitic nasal lesions, insanitary surroundings, influenza, or convalescence from long illness will cause it.

Traumatism, both from the surgeon and the dentist produces a certain number of cases but a great number is traced to infection from the roots of the teeth. But what per cent is traced directly to the teeth cannot be accurately given, for the different surgeons' statements upon this point vary from one hundred per cent to that of about twenty per cent. Some surgeons have stated that in a given number of cases that in each one of them suppur-

ation of the antrum was directly due to the teeth, though there is only a simple cavity in the crown of a bicuspid or molar on that side, or the teeth had been filled and apparently in good condition.

Understanding the anatomy of a tooth as we do, tell me if you please how a simple cavity will cause suppuration of the antrum?

The dentist can readily see why the surgeon could mistake a case of the latter sort. the tooth has been filled and possibly the nerve previously removed and some portion of the apical third remains and later causes suppuration, or it may be the nerve dies under the filling which could also cause it.

If in a case of antral suppuration I found only small cavities in the teeth, I believe you will agree with me, that we had better lay the cause to the lymphatics and blood vessels for transmitting microbes, than through the dental tubuli.

As a rule patients suffering from antral suppuration will consult the dentist only when they know the teeth are at fault. The symptoms of acute antral suppuration are, pain in the cheek and supraorbital region, tenderness of one or more teeth if they are directly at fault. Sometimes the face adjoining the nose and under the eye is swollen. I will add here that I have seen cases that at first did not appear to be caused by the teeth, but upon extraction or treatment of that tooth would give the patient great relief, but it will not give a cure.

After you have looked well to the teeth, and are not dealing in specialties, the patient should be sent to a surgeon for treatment. If the surgeon finds by his tests that there is pus in the antrum he will then want free access and drainage which is best obtained through the alveolus. A tooth, as a rule, is sacrificed and then by puncturing the floor of the antrum you have access.

To keep this hole from closing, a tube should be constructed of gold or silver of the size of a goose-quill and of sufficient length to reach the floor, but it should not extend into the cavity. If you think it does, then to be absolutely safe, perforate the tube at its upper margin, for if it projects above the floor it will not give the desired drainage.

I will say that a great many cases of antral suppuration are caused by the teeth and in these cases it is necessary, if the surgeon expects a cure, to have the assistance of the dentist.

SYPHILIS.

The syphilitic virus finds its way into the system by inoculation, usually as a result of impure sexual intercourse or through accidental contamination, the first evidence of the malady being the so-called initial lesion or chancre.

This may present the appearance of slightly scaly, flattened papulæ, a film of infiltration, or a variously sized, usually small, crateriform ulcer with moderate or marked underlying and surrounding infiltration.

Still another type is occasionally encountered, consisting of an abraded surface, with but slight or moderate infiltration and covered more or less completely with a somewhat tenacious, firmly adherent, pseudomembranous film or exudation.

The most common site for the initial lesion, as is well known, is some part of the genital organs both in the male and female. The extragenital or non-venerial chancre is a matter of not uncommon observation. It may be seen on any part of the body, but by far most frequent upon the face and especially the lips. The tongue is sometimes the seat of the lesion, and it is occasionally found upon the tonsil. The finger, especially at the lateral nail-groove, is also a not uncommon situation. On these extragenital situations chancres do not differ from those seen on the genital organs. On the lip the superficial flat lesion, with the pseudomembranous coating, is not unusual, although in other instances it has the typical subjacent and surrounding infiltration and the crateriform ulcer. This latter variety is also generally seen on the tonsil. Both on the lip and about the finger nail the first evidence is often a persistent fissure. In the latter region sometimes the lesion is exceedingly insignificant. As a rule, there is rarely much difficulty in the diagnosis of extragenital chancres, presenting, as they generally do, the slow development and course and the characteristic induration.

A patient coming to you with the statement that he has had a "persistent fissure or fever blister on the lip which will not get well" should always lead to careful inspection. If such lesion has been of a few weeks' duration, an examination will often show a beginning chancre. Any sore on the lip which has existed several or more weeks must be looked upon with suspicion, as ordinarily, if not epithelioma, it is the induration of syphilis.

In fact this holds more or less true with any single sore upon the face or other parts. A suspicious lesion, of a few weeks' duration, with enlargement of the nearest anatomically connected lymphatic glands, is almost invariably found to be a chancre. A persistent crack at the border of the nail, in those unaccustomed to fissuring or chapping, should always be carefully watched; not infrequently induration will be disclosed and beginning enlargement of the neighboring glands.

It is by overlooking the fact that a chancre is not necessarily always a genital and venereal lesion that mistakes are ordinarily due, for as a rule, when this is recognized, the differentiation from other diseases is rarely difficult.

CUTANEOUS MANIFESTATIONS OF ACQUIRED SYPHILIS.

Syphilitic manifestations of the skin constitute an important class of cases, and the presence of such lesions, history of their occurrence, or resulting scars often furnish important clues to the possibility or probability that some existing obscure organic or constitutional condition may be due to the same cause.

After the appearance of the initial lesion of syphilis, there is, as is well known, a variable period of a few weeks or longer, known as the "period of second incubation," in which the disease is apparently quiescent. By the appearance of the second stage we have the most characteristic symptoms of which are the more or less generalized cutaneous eruptions. This occurs at a somewhat variable period after the date of inoculation, from four or five weeks to some months. You may place the average at about eight weeks.

Preceding the eruptive outbreak for several days, certain other symptoms are not infrequently observed, such as rheumatism, severe headache, neuralgia, bone pains, some loss of weight, a dinginess or unhealthy looking skin tint, and occasionally a distinctly cachetic condition. These conditions may persist for days and weeks or may subside upon the full development of eruption, or they may show tendency to abate until medical treatment is rendered. Some cases may remain free from the above mentioned symptoms, and the eruption be the first sign of constitutional syphilis. The secondary stage may be so light in all respects that its occurrence is overlooked, and if the chancre has been slight, it may be that tertiary eruptions or other syphilitic

symptoms may be the first recognized evidence of the malady. As a rule, however, secondary manifestations are sufficiently pronounced to cause the patient to seek medical aid.

GENERAL OBSERVATIONS.

Syphilis, not only in its cutaneous symptoms, but in all its relations, varies considerably in different cases. It may be benign in character, scarcely making an impression, or in occasional instances extremely severe or malignant, striking the patient with tremendous force, giving rise to profound anemia, marasmus and even death. Ordinarily, however, its course is mild or only moderately severe.

The earlier cutaneous manifestations, those of the secondary period, are more or less general and symmetric in distribution. In the earlier eruptions there is exhibited but little, if any, tendency to special grouping. The lesions are usually round or oval. In the latter, irregular grouping occurs, but as a rule this is reserved for the tertiary stage, and in this stage the tendency is segment, circinate, and serpiginous arrangement is more or less constant, and is almost diagnostic. The color of the syphlodermata is a dingy, sluggish or dull red, often coppery. In the earliest part of the outbreak, more particularly of the macular syphloderma, the hue may be a brighter one, often of a quite distinctly inflammatory aspect, but this is soon lost, and the dull red to the brownish red finally amounts to brownish pigmentation, which, however, eventually disappears. The dull or coppery red is often very suggestive, but you cannot depend upon that alone for positive evidence, only view it as one of the diagnostic features.

The ulcers of the early pustular syphilodermata are superficial, and, as a rule, have no special characteristics; those of the latter form a segmental, rounded or kidney shaped. The scars resulting from syphilis are usually soft, pliable and somewhat insignificant, commonly showing minute perforations, the sites of former follicles.

Those resulting from the latter eruptions take the shape of the lesions or groups giving rise to them, and the segmental or horse-shoe shaped scar or scars will often serve as the key to the past or associated present trouble. The syphilitic eruptions are usually unaccompanied by subjective symptoms, and this can sometimes be used as a differential point. An exception to this

statement must be made as to the negro, as in this race slight itching is usually complained of, although it is rarely sufficiently severe to give rise to active scratching. The course and duration of the syphilodermata of the active or secondary stage usually appear somewhat rapidly and attain full development in one or two weeks, after which it is not uncommon for a few lesions to show themselves irregularly for a short time. After several weeks the muscular syphilid has generally pretty well declined, in the other types there is often a stationary period for a month or so, with now and then, in some cases, a slight recurrence. Disappearance gradually takes place, however, in a few months in some instances, much longer in others, occasionally leaving more or less persistent lesions on certain regions, as the palms. The papular eruption is quite prone to slight relapses some months.

CONCOMITANT SYMPTOMS.

Along with cutaneous manifestations of the active or secondary stage of syphilis other symptoms of the malady are usually associated. The chancre often persists or its mark or scar is found. The anatomically connected glands are found to be enlarged, and generally adenopathy is likewise usually recognized. Sore throat, mucous patches, or superficial ulcers on the inner aspects of the lips, in the mouth and pharynx are commonly observed, in some cases to considerable extent, in others slightly and exceptionally, scarcely at all. Iritis, bone pains, etc., are also sometimes noted. The skin is commonly sallow or dingy looking, and the patient anemic, and at first a tendency to lose flesh. It is seldom that all of these symptoms are observed in one case, sometimes but one or two. In the late, or tertiary syphilodermata, concomitant symptoms are often wholly wanting, although sometimes bone lesions, bone pains, alopecia, superficial glossitis, leukoplakia, one or more of which may be present. Much more frequently the only evidences of former disturbance are to be found, such as scars, the effects of iritis, etc.

THE AFFECTION OF THE APPENDAGES OF THE SKIN, THE HAIR AND NAILS.

Alopecia or loss of hair, consisting of a general falling of the hair, is noted in the early period of the second stage, but rarely

amounts to visible baldness, but is more of a simple thinning. The amount varies in different cases, in some the loss daily being considerable, in others slight, and sometimes scarcely enough to attract the patient's notice. It is not only* due to the infection itself, but sometimes indirectly also to the seborrheic condition, which the disease not infrequently engenders. Occasionally, instead of a general thinning, it occurs in ill-defined and incomplete, small and irregular patches. The hair also shares in the general "dinginess" which the disease often produces, becoming dry, more or less lusterless, and lifeless looking, associated with the sallow or dingy appearance of the skin, especially of the face.

As a rule, except when ulcerative lesions have been, or in old age or has no family tendency to baldness, a new growth, full or almost a complete growth will follow.

The nails are also occasionally involved, either one, several, or more and of fingers and toes.

Both onychia and paronychia are met with, usually in the active secondary stage, in acquired syphilis. The usual initial factor is the lesion, generally papules or ill-defined infiltration, of the bed matrix, or nail folds. Instead of chiefly limiting itself to the bed and matrix of the nail, the inflammatory or infiltrating process may extend to the surrounding parts, or it may begin at the latter, and a somewhat variable grade of paronychia results, with the usual symptoms of this condition. The skin around the nail is reddened, swollen, the tissue infiltrated, and suppuration or ulceration may result, and give forth a fetid discharge. If severe, the finger end may show clublike enlargement, but this is never so well marked as in infants in hereditary syphilis.

A child born of syphilitic parentage, which fails to present manifestations within the first six months, may usually be considered to have escaped infection, although some exceptions do occur.

Late and relapsing manifestations may, however, be observed in those who have been subject to the usual early post-natal symptoms, although the hereditary disease, if it yields to treatment, shows if the latter has been properly carried out, but little tendency to recurrence, although some traces of its ravages or influence may remain. Among such symptoms as are of dermatologic interest, and which are not uncommonly present in the first month or year, are interstitial keratitis, notched teeth

(Hutchinson's), disturbances of hearing, irregular thickenings or flattened nodosities of the skull, dactylitis, onychia and paronychia, inflammation and swelling of the region of the neck of the long bones, and sometimes resulting pseudoparalysis.

The diagnosis of the hereditary syphilodermata is rarely a matter of difficulty as the associated symptoms of snuffles, mucous patches of the mouth, the frequently accompanying shriveled or "old-man appearance," the marasmic tendency, and the usually polymorphous character of the eruption will give a picture more or less characteristic. At least two, sometimes more, of these associated symptoms will geneally be present, together occasionally with dactylitis, onychia, keratitis, exostosis, etc.

Syphilis is acquired through heredity, which has been sufficiently touched upon, and in various ways by direct inoculation. The usual and most common method is through the sexual way, by conveying the syphilitic poison. But extragenital chancres are not at all uncommon and the virus may be transmitted through the act of kissing, from drinking-cups, and razors in barber shops, also by the dentist or doctor in his operations. It is not uncommon for a doctor or dentist to contract this disease through carelessness in his operations. It is a fact, too, that doctors transmit this disease from one peron to another through carelessness.

You may ask why I have gone into this long description of syphilis. You may ask again before I am through; it is because I wish to show you its effect on humanity; because I look upon it as one of the dread diseases; because I wish to impress upon you that constant care must be observed.

Gentlemen, if the people of Indianapolis who are to-day inoculated or have been in the past with this vile disease, were in line they would reach around the belt.

Fortunately a great many dentists sterilize their instruments and it is again true that a great number do not. But is it not time that each and all of us take the necessary precaution to guard against inoculation?

Infection is, however, generally considered by those of experience to be uncommon after the second or third year, but there are sufficient exceptions to this during the fourth and fifth years to consider still the possibility of danger. The belief that the tertiary lesions are inocuous in this respect is not so held to-day

as formerly, and instances have been noted in which the virulence still exists.

The prognosis as to the syphilodermata, the infectious nature of the virus, and the hereditary syphilis have received more or less consideration. So far I have said very little in regard to the teeth, but will now call your attention to some facts in that direction.

HEREDITARY SYPHILIS AFFECTING THE TEETH.

The first teeth exhibit malformations and imperfections which are by no means characteristics of syphilis, but which may be referred to any inflammation of the gums sufficiently severe to interfere with the nutrition of the tooth-sacs. Thus, the teeth are often deficient in the enamel or it is unevenly distributed, or is opaque and chalky, or the dentine is soft and friable, or the teeth are incongruous in size, individually and relatively.

The permanent teeth may exhibit the same perversions of growth and nutrition as a result of stomatitis, whether this inflammation be produced by mercury, by gastro-intestinal derangements or by local irritation. Mercurial teeth, for example, are irregularly outlined, horizontally seamed, honeycombed, scraggy, malformed, of an unhealthy, dirty-yellow color, separated too widely, and deficient in enamel. The term syphilitic tooth implies a congenital dental malformation, a deficiency of development stamped by syphilis on the tooth yet unformed during the period of intrafollicular evolution. The first dentition is not so often influenced as the second. The dental malformations are commonly multiple and symmetrical, that is, several teeth are affected, and usually corresponding teeth show similar lesions.

DENTAL EROSION.

This malformation may implicate any portion of the surface of the borders of the tooth. Its common manifestation on the anterior teeth is a cupping, comparable to the slight depression which would be left by the head of a pin in soft wax. These cuppings show a dark tint, grayish, brownish or almost black, and in deeper depressions, enamel is entirely wanting. Erosions of this form are most common on the incisors, and notably on the su-

perior centrals, and are often arranged in one or more horizontal rows.

The furrowed erosion is the most common form, appears as a transverse groove, which may make the entire circuit of the tooth, or may be broken. The groove may be so shallow as to form a scarcely perceptible streak, or it may be deep, as though filed, producing an unsightly deformity since it soon acquires a dark tint. These furrows are always horizontal and usually single. Sometimes two or three are noticed in the same tooth, occupying the portion of the crown nearest the incisal edge. In some cases the incisal edge is usually worn thin, partly or wholly deprived of enamel, rough, uneven, irregular, brownish and rapidly wears away.

The malformations affecting the cutting or grinding surfaces of the teeth present themselves under different forms, according to the class of teeth they affect. The first molar is the only one among the grinders upon which the influence of hereditary syphilis shows itself. The body of the tooth for two-thirds or three-fourths of its height is normal; its upper surface is atrophied, suggesting a stump of dentine emerging from a normal crown. The masticating surface is rough and of a dirty-yellow or brown tint, and wears away, producing a flat surface with a yellowish center and a peripheral border of enamel. The short, flat tooth has a diagnostic significance of high value.

Upon the cuspids, erosions of the free edge may occur as a simple notch, similar to slipping a cone, which is too small, over a piece of compound, or as a true atrophy, producing the appearance of a slender conical stump grafted in a cylinder. Erosions of the cutting edge of the incisors are more numerous. There may be an angular notch, serration, atrophic thinning, with antero-posterior flattening, or general atrophy, the tooth presenting a normal base from which emerges a small, rough, dirty-gray stump with an uneven surface. Finally, there is a crescent-shaped erosion characterized by a semi-lunar notch, known as the Hutchinson tooth. The important peculiarity of the superior central incisors are the teeth which present this characteristic crescentic notch. It is impossible to mistake it or seriously consider it in connection with any other affection of the dental organs.

The typical (Hutchinson's) is also marked by its rounded

angles, the lateral and incisal angles merging by a curved line; it is much reduced in length; sometimes it is narrowed. A perfect type of this tooth is best observed in youth. It does not protrude from the gum with a clearly-cut notch, appearing first with this notch either partially or completely filled by a small or apparently atrophied vegetation of the dental tissue. Deprived of enamel, these vegetations are rapidly destroyed, leaving in their places the smooth crescentic notch, the depth of which diminishes with use. At twenty-five this notch is nearly obliterated, but even then there remains the bevel of its anterior edge. Later, with the wearing of the tooth, the bevel disappears so that beyond the age of thirty years Hutchinson's teeth are not to be found. This dental malformation commonly affects two teeth symmetrically, often exclusively. Sometimes it is observed in the upper centrals or in the cuspids, laterals or inferior centrals. As to the semiological value of dental erosions, the point-like and cup-shape lesions of the crown and the saw-like erosions of the free edge have but little value as evidence of specific heredity. Furrowed erosions are more characteristic, but are also caused by other conditions than hereditary syphilis.

Atrophy³ of the dental cusp, usually that affecting the first molar, has a more precise meaning, because this is a favorite form of the malformation when caused by syphilis. The best form, one which can be given as an almost certain evidence of syphilitic heredity, is the semilunar notch of the free border of the central superior incisors. This special form of erosion is a diagnostic feature of incontestable value. Aside from the workings of the teeth already mentioned, we have, microdontism, implying to unusual smallness of the teeth, sometimes amounting to actual dwarfing, but it never involves the entire denture. The teeth may present simple deviation of normal type, exhibiting characteristics of class to which they do not belong, or they may be so malformed that they become true monstrosities, forming shapeless masses. Another thing of importance is the irregularity of implantation, the teeth being separated from each other by large empty spaces.

In conclusion I will say that it may be considered as well established, that when the two superior central incisors are stunted, abnormally narrow at the cutting edge, crescentically rounded with the convexity upward, widely separated but con-

verging at their lower edges, they are characteristic of hereditary syphilis.

DISCUSSION.

DR. C. C. MILLER.—In considering the subject of the eye and its relation to the practice of dentistry there is not much more to be said, as the essayist has certainly covered the ground very concisely.

It is said that iritis is caused by injury, syphilis, rheumatism, gonorrhea and tuberculosis. L. Webster Fox, on "Diseases of the Eye," states that dental caries has also been recorded as a casual factor in iritis.

The point is just this: As has already been said, there is such an anastomosing of sympathetic ganglia in this region, and the eye being especially susceptible to sympathetic affectations, we may readily apprehend marked sympathetic symptoms at times developing in the optic regions, and as these symptoms are usually very obscure to the patient, it is especially important that the operator make a diligent search for complications.

THE EAR.

It is not necessary to dwell upon the subjective symptoms of sympathetic trouble in the ear arising from the dental organs, and *vice versa*, for with these every dentist is familiar and the cause of this the essayist has made very clear. I would say, however, that a very similar condition to that of sympathetic dental irritation of the middle ear is hereditary syphilis of the internal ear—with specific infiltration—accompanied by exudate, resulting in slow development of new bone and connective tissue.

However, if the etiology is of dental origin the attack is more accurate, not so great a loss of function, and not accompanied by other marked functional disturbance. If syphilitic, there is an early loss of function; a slow development of symptoms and frequently an involvement of one or both eyes with presence of corneal opacity due to interstitial keratitis.

ANTRUM OF HIGHMORE.

Considering the close proximity of the floor of the maxillary sinus to the ends of the roots of the first and second molars and in exceptional cases to the second bicuspid and third molar, it is little wonder that we find so many cases of antrum suppuration which are traced to tooth origin.

I can put no faith in the theory that microbes are able to gain entrance into the antrum through the tubules of the dentine of a tooth whose pulp has never been exposed to the fluids of the mouth. But we must not consider too lightly those putrescent and ulcerated roots whose apices are only separated from the antrum by a thin, bony table.

In extracting old roots, great care should be taken lest in forcing the forceps below the gum margin we failed to get both beaks between the tooth root and the process and thus drive the apex of the root through

this thin plate, and carry with it the product of long-standing infections, or at least open up a road for some of the microbes whose tabernacle is the mouth of the average adult.

It is a wise plan to examine the cavity after extracting such root and if there be found an opening into the sinus, carefully syringe it out with a mild antiseptic to avoid local infection. An additional precaution would be to fill the tooth socket with antiseptic gauze for twenty-four to thirty-six hours, thus preventing the entrance of any foreign substance until the wound be closed by nature.

SYPHILIS.

The essayist refers to syphilis as a vile and dread disease. I find one author who says that syphilis is "quite ancient, therefore respectable." The origin of syphilis dates back to almost prehistoric times. It is claimed that in Bible times this disease was confused with leprosy. There is unmistakable proof that syphilis was known in Europe long before Columbus made his voyage to America, and that it existed among the aborigines of America is shown by a study of the bones found in mounds and ancient burial places of our own country. In these places are found evidences of syphilitic otitis, caries and necrosis.

Linton says that evidences of the antiquity of syphilis may be had in recent translations from Chinese medical writings which show that syphilis was known in China two thousand years ago. It is also known that Moses was familiar with that disease, a fact which makes it still more ancient and respectable. The fact that syphilis, like other infectious diseases, is modified in its severity by individuals of one generation imparting a degree of immunity to their descendants is shown conclusively. During its early existence in Europe syphilis was so malignant and widespread as to be recognized as a sort of plague, almost annihilating entire armies. In considering the modified severity of syphilis we must not lose sight of the fact that modern methods of preventing and combating this and other infectious diseases mean much toward keeping them in check. And yet, the theory of hereditary tolerance must not be doubted.

There is one point regarding syphilis upon which I wish to dwell for a moment. That is the manner in which it can be transmitted from one person to another. The essayist has said that the virus usually finds its way into the system as a result of impure sexual intercourse or by accidental inoculation. While the former is the usual mode of inoculation, it is the latter which most directly concerns us. It is by the latter means that the dentist inoculates an innocent patient or innocently inoculates himself, by negligence in the proper use of antiseptics and sterilizing agents. While we cannot be too careful as to sterilization, and while there is but one safe rule, yet let us consider just where the danger lies. Is it during the primary, secondary or tertiary stages that we most stand in danger of transmitting the virus from a syphilitic? What, if any, is the time when there would be no danger?

The best authorities agree that syphilitic virus is carried either in syphilitic blood or the secretion of a syphilitic lesion. And that the natural

secretions of the body, such as sweat, urine, milk, and serum, do not contain the virus unless contaminated with blood or the mucous from a lesion. It is an absolute fact that the disease becomes milder with time and that after the termination of the secondary stage the chances of escaping syphilis increase rapidly.

I think we should not be too certain in making a diagnosis of syphilis from suspicious-looking patches in either the hard or soft places of the mouth, the throat or the tonsil. Some of the best authorities concede the marked similarity in specific and non-specific patches. Therefore, it is necessary that we make quite a thorough investigation of the case and obtain a clinical history of the past few months or years, and if our suspicions are confirmed, refer the case to a specialist.

DOCTOR COOKE, of Ohio.—The intimacy of the teeth with the eye and ear, from a sympathetic standpoint, of course, has been recognized for many years and the importance of such conditions is one that is recognized. It has not been recognized, I believe, from a dental standpoint as much as it should be and it has not been recognized as much as it should be by the medical men.

This matter of syphilis has been a subject that has attracted my attention from the very first in clinical works. Having been connected with a large public dispensary for many years at a place where we would expect to find a majority of our syphilitic cases, I have come to the conclusion that while Doctor Miller has expressed very forcibly to my mind that so far as a syphilitic place is concerned in the mouth, it is not always as he describes it. A further observation in regard to the Hutchinson tooth as a mark sufficient to say that we have inherited syphilis seems to me to be practically inadvisable. Not long since I had occasion to see a clinical case that was taken in one of the medical societies, upon which the medical man had passed his diagnosis almost entirely upon the condition of the teeth. There was very little evidence of the Hutchinson tooth, so-called, except the formation of the first molar, which answered a typical description of a Hutchinson first molar, and yet upon a close observation and close examination by a number of men who were there, they came to the conclusion that it was a case of tuberculosis, which it proved later so to be. The child had probably inherited or acquired tuberculosis very early in life and this doctor had pronounced it a Hutchinson tooth. In New York city, some years ago, I attended the clinic of Doctor Jacoba, who was in his day probably one of the greatest men we have ever had in our country, and I inquired of him very closely as to what value he considered the Hutchinson tooth in the diagnosis of syphilis. He told me that when he started out early in life he started with the full belief that it was a typical sign, but later he had come to the conclusion that it was of little or no value in the decision upon the subject. Jacoba had one of the largest clinics for children's diseases and was a very keen observer, and said: "When we can trace back certain conditions of acute infectious diseases having come about in certain periods in the life of the child and the results that followed those conditions, we have many times almost developed

the typical Hutchinson tooth where we have no other evidence of syphilis."

The Hutchinson tooth has apparently come into medical literature as an absolute sign. All the literature written upon the subject holds out this beautiful description of the so-called Hutchinson tooth and claims that it is absolutely infallible. I believe that there is a point of some importance, but I also believe that there is a great bugaboo made about the Hutchinson tooth that is unjustifiable. This paper has certainly opened up a great field of thought and is worthy of consideration and discussion, even though our subject matter may be gathered from data laid down incorrectly in many respects, and it should lead us to further investigation that will prove of benefit to the profession of dentistry as well as to the medical profession. I believe that dentistry has the best opportunity in the majority of instances of observing conditions, because a dentist becomes trained to observe. His faculties for observing are trained beyond those of the medical man, who is usually trained for a specialized work.

I quite agree that the nose and throat man is of value, but my experience with the most of them, I am sorry to say, has not been flattering. I think most of them are the most careless people we have in the medical profession. In most instances I would rather risk conditions with a good old physician—an observing physician—who looks into everything that concerns the case and who is going to treat the disease, rather than the man who does nothing but what he has been trained to do.

F. R. HENSHAW, of Middletown.—I was unfortunate in not hearing the beginning of this paper, which I consider a very excellent one, and I am sorry that Doctor Cooke did not see anything in the paper except that part pertaining to syphilis. To my mind, there were very interesting subjects in the part of the paper prior to that on disease of the antrum. I like Doctor Barnhill's descriptions of conditions in that region and I want to recite a case I had occasion to see recently that was at least very interesting. A lady, probably fifty-five years of age, had suffered from chronic abscesses, in the neighborhood of fifteen years, in constant process of supuration. Recently she was taken very ill and two or three specialists were called to examine her and they diagnosed the trouble as an abscess on the mastoid process and they claimed to trace the source of the disease to this particular abscess. I had the pleasure of assisting in the operation for the opening of the mastoid cells, and we found that there was a considerable quantity of pus in that region. But what I want to bring to your attention is the fact that to my poor understanding I can see no relation between the abscesses in the antrum and the mastoid process; yet that was a conclusion that the specialists came to in the matter. The disease proved fatal and of course I was very sorry. I am not able to understand the possibility of this relationship. I would like to hear if any one else knows anything about that.

DR. H. E. WHITE.—I would like to inquire of Doctor Henshaw what the conditions were that produced the death? Poisoning?

DOCTOR HENSHAW.—Yes; it was poisoning.

DOCTOR WHITE.—We find very frequently a mastoid abscess will produce death by poisoning, but to my knowledge I feel that an abscess in the antrum has no natural effect upon the mastoid process of the occipital bone. I see no relation, whatever; I do not handle a great many of these cases, however.

DOCTOR HENSHAW.—I will state further there was no prior lesion, whatever, except the abscess in the antrum of Highmore.

DOCTOR BARNHILL.—It appears to me that Doctor Cooke would have you believe that we cannot go at all by what we see in the Hutchinson tooth. In my own clinic I will recite you a case of a boy, possibly nine years of age. He was brought to me, to my office last year, and I noticed the condition of his teeth and found a typical Hutchinson tooth. I have known the family for years, yet I did not know that either of the parents had syphilis. About two weeks ago the boy was brought to my office again and his mother was with him this time. Of course, I had a good chance to note the teeth. The following Sunday I was up in the country and this family lived next door to the place where I was visiting. The lady whom we were visiting mentioned what a good neighbor she had, what an excellent woman she was, what a good housekeeper she was, etc., but that she didn't have very good health, and she thought she had scrofula. Then she talked about the boy, saying he was the only boy that had lived and that the woman had had nine other children, and that the others had all died. Now, I want to recite to you this case to show you that my observation proved in that instance at least that the Hutchinson tooth was a strong indication.

Doctor Cooke also says that specialists are rascals. We have some dentists who are rascals, but that does by no means prove that they are all rascals. We have specialists here and in other cities who are not rascals, but specialists who are radical operators and take special lines for doing things, so far as the cases I have observed are concerned, and I believe truly that the dentist who associates a great deal with the specialist is the better off for it. I have associated with specialists—many of them—who have been of value to me, and I like to associate with specialists.

NEURALGIA.*

BY DR. JAMES G. ATTERBERRY, TECUMSEH, NEBRASKA.

In choosing the subject of neuralgia, I did so because I find very little literature on the subject, and I think it is one which demands more attention than is generally given to it.

How often we have seen or heard of cases where the teeth have been sacrificed, thinking they were the cause, in the hope

*Read before the Nebraska State Dental Society, 1904.

of giving the patient relief, and what is the result? No abatement of the trouble and the discomfort to the patient of having to wear artificial teeth, when, perhaps, if the dentist had given some study to neuralgia they might have had the use of their own teeth and possibly been restored to health. But the causes for neuralgia are often so obscure that it is impossible to find or locate it at all, but if a direct exciting cause is found and removed, the patient recovers rapidly. Neuralgia is a term used to designate an affection characterized by pain and located in the trunks or branches of the sensory nerves, and dental neuralgia is a form that has its direct exciting cause in some affection of the teeth. The pains in neuralgia are peculiar to this affection. They are sharp, lancinating, piercing pains, coming on in paroxysms following each other in rapid succession, or there may be intervals of time between them lasting from a few seconds to several minutes. The attacks may come on often or there may be days or even weeks when there will be no trouble noticed. The pain may dart from point to point along the course of the nerve and it will be almost impossible to tell where it is. It may change its location slowly, even seeming to center itself in one spot for a short time; then again the pain may be felt along the whole course of the nerve. Neuralgic pains never develop from acute inflammation. A period of preparation seems to be necessary for the development of certain conditions of the sensory nerve to produce the pain.

Chronic toothache need not necessarily develop into neuralgia, but is often does. It is known beyond a doubt that neuralgia of the fifth pair of nerves frequently has its origin in some diseased conditions of the teeth, and we also know that an affection entirely occult may be deflected to the fifth nerve, and when a patient comes to us complaining of severe pains in the head and face we should be extremely careful before we decide what to do, as this trouble may not arise from any condition present in the teeth and should not fail to take warning before removing the teeth, which is often done after the case has run a long time without any relief. We would have the case as above stated, and we would certainly feel discouraged ourselves. In diagnosing a case of this kind, two points may be relied upon safely; first, in every demonstrated case of dental neuralgia the second and third branches of the fifth nerve have always been

involved, one branch being affected without the other being involved is a contraindication; and, secondly, the act of conducting a sensation from the surface is also a contraindication of dental neuralgia, as the pain is always deep-seated and the act of transmitting impressions from the surface by rubbing the skin with the hand would produce no effect such as producing a paroxysm. We should also not allow ourselves to get sympathetic pains, which may be present in severe toothache, confused with neuralgia; they have nothing in common with them at all. Sympathetic pains are never sharp or darting pains like neuralgia, but are steady and not so severe and are almost always accompanied by severe pains at the seat of the lesion. In cases examined it is found that teeth without living pulps are never the cause of neuralgia. This is often contradicted, but all cases examined by Doctor Black, of the Northwestern University, indicate that there has never been one case resulting from teeth with pulp removed. He says in such cases examinations have not been thorough and portions of living pulp were certainly present. The causes of neuralgia are predisposing and exciting. In those predisposed to neuralgia there seems to be a pathological condition affecting the functional constitution of the nervous system; and those who are so disposed will have the affection developed by trifling causes, while those who are not so disposed the same causes would fail to produce this result.

Exciting causes are wounds, mechanical irritations, exposed pulps, and things of that nature. In many cases where no cause could be found, it is thought that the changes in the bony orifices through which the nerve passes has been a cause. As to pulp nodules, there is a difference of opinion, but it would seem that the sharp corners which may be found would produce an irritation that would degenerate into neuralgia. By far the greater number of cases of dental neuralgia develop from exposed pulps in places where they are protected from injury but through gradual irritation develop into neuralgia. Such teeth are seldom sore to the touch and the practice of rapping the tooth with an instrument is not considered reliable by many physicians and dentists. The pulps are generally found to be very sensitive, abnormally so, but will later be followed by a complete state of anesthesia.

Alveolar abscesses sometimes cause neuralgia by the burrowing of pus into the mental foramen. One case I read of

where exostosis of the roots was a cause. A case of five years standing, tooth was elongated from not having an antagonist and when removed the roots found to be exostosed. A complete recovery followed in a short time. Of course we could have no way of knowing whether roots were in this condition or not, but it might be of interest to note the case. Impacted teeth are considered by many to be a direct exciting cause by producing pressure on the nerves due to crowded condition.

It is extremely difficult and often impossible to locate the causes, and demands the closest attention, as they may be so slight that we would ordinarily never notice them. A cavity at the gum line, covered over with the gums, could very easily escape our closest search, and we should always be very careful before we proceed with our treatment.

THE PRESENT STATUS OF DENTISTRY.*

BY A. O. HUNT, D. D. S., OMAHA, NEBRASKA.

Dentistry is among the oldest of the professions, dating from the time when the sick and ailing were placed in front of the temples so that those who had been afflicted before them might give advice and relief.

Those suffering with diseases of the teeth and oral cavity received their share of attention. All along down through the ages, the writers, scholars and observers, in all times, have contributed to the literature of their times and day—the pathology of the teeth and surrounding tissues are always mentioned. These records have been made, are indisputable, and reach down to the present time in a continuous line. Even through the so-called dark ages, from 486 to 1475, the records of treating diseases of the mouth and teeth exist either in fact or by reference of later writers to them, giving book and page, author's name and other data. Dentistry has been perpetuated by this class of men, and not by the barber, the jeweler or the blacksmith. While these latter may have done something to relieve the distress of individuals or may have made some appliances here and there, yet, after all, the origin of this knowledge necessarily comes from

*Read before the Nebraska State Dental Society, 1904.

those who were scholars and investigators of pathological conditions and their causes. It is ludicrous to think for a moment that the barber-dentist and the barber-surgeon were the ones to perpetuate the science of either dentistry or surgery.

As well might some future generations, in the unearthing of some buried city like Omaha, Lincoln, and many others, if they should find the remains of a wall, sign-board, or cement walk, say that the people of the nineteenth and twentieth centuries used tablets, walls, and the pavement to inform the public of how their teeth might be treated and was the method use at that time by dentists. These kind of men occupy the same position in regard to the perpetuation of dental science in these times that the barber-dentist did in olden times.

The literature of the sixteenth, seventeenth and eighteenth centuries is replete with written articles and pictures, treating of the oral diseases and deformities and the method of correcting them both by surgical operations and mechanical appliances. Orthodontia, pyorrhea, obturators, filling materials, and nearly all conditions we are now dealing with were known and efforts made to cure them, and some sort of material was used for filling teeth. In the latter part of the eighteenth and throughout the nineteenth century the growth of dentistry as a science was of special character. Books were being written upon dental subjects alone. The process of advancement was along these lines continually until the year 1839, when the movement was inaugurated for a dental college. This was accomplished, and many date the beginning of dentistry, as a science, from this time. The history of dentistry, however, will not admit of this. The evolution has been continuous and complete up to the present time. The United States seems to have the necessary conditions for a more rapid growth of this science than other countries had possessed. France, however, had developed much of the mechanical art of the science in advance of the United States.

After the establishment of the dental school—which, by the way, was not established by the barber-dentist—systematic training of those who desired to enter the practice was begun and now, with truth, it may be said that none can enter upon the practice without a training obtained either in the regular college or its equivalent obtained from some other source. As to whether dentistry is a specialty of medicine, or a science by itself, is

immaterial at this time, or, for that matter, at any other time. One who is only medically educated cannot successfully fill the demands made upon the dentist, neither is there in any medical course any provision for the education of the dentist, as there is for the oculist, aurist, etc. One only medically educated is lacking in manipulative ability, as well as a detailed knowledge of those things that are necessary for the application of that ability, even should he possess it. On the other hand, one having a knowledge of dentistry, that has been obtained from other sources than a dental college, may have, to an extent, manipulative ability, but will usually be lacking in that knowledge obtained in a school where the science and theory and practice are taught in conjunction, and demonstrated by technical procedures.

This is the status of things at the present time, and it is not too much to say that a man taking a three-year course in a dental college is decidedly better equipped than he would be had he spent the same time and effort to become a dentist outside of the college. If the one who has earned his degree is not a better practitioner after a period of a few years than the other, it is his own fault. The degree stands only as a certificate that he has taken a course of instruction and fulfilled a requirement, the latter gauged for the average student.

The teaching in all the colleges is arranged, and the course of instruction such that it is fitted for the bright, energetic and working student of the best character of attainments and habit. In this respect the colleges are doing their full duty to the profession, to the student and to themselves. As an evidence of this, the percentage of qualified persons who are in the practice of dentistry is fully as large as the percentage of those in any other calling. Some one has estimated that the proportion of men in all callings of life, who are qualified and successful, is about five per cent. On this basis there would only be an average of thirty successful dentists to each State, which is not by any means correct. Furthermore, when one enters upon any calling it is necessary to have a foundation knowledge of that calling before he can be considered ready to deal with practical affairs and administer them with practical success. The college of dentistry, like all educational institutions, can only teach principles, and, to some extent, the methods of applying them.

Evolution of this character and along this line has been

progressing steadily since the establishment of the first dental college. Contemporary with this and aiding the movement has been the progress of dental journalism and the dental society. All these forces have operated to elevate and improve the practice of dentistry. While it is not what we would have it, yet the standard is constantly improving. Any time within the last ten or twenty years the knowledge and skill possessed by the well qualified and conscientious dentist has been sufficient to save the human teeth from extensive decay or loss until mature life, had the patient been placed in his care in earliest childhood. The saving of teeth has been the conservative ideal of dentistry in the United States.

The profession is divided into the enthusiast, commonly called a crank, and the conservative. The enthusiast has started things moving and kept them going one way and another, shooting at long and short range, making us all faddists at times; hurrying us on at a rapid pace, and doing good all the time; at one time advocating one thing and at another time something else; always in earnest, believing in himself and what he says and keeping all up to a high pitch of work and endeavor. The conservative—slow, critical, sure—but just as earnest; the wheel-horse here as elsewhere.

The severest critic of dentistry is the dentist himself. Of no one is there expected perfect results so much as the dentist. The steady and continual criticism that is side by side with every movement in the dental world, both in college, journal, society and the individual, has brought about the present possibilities.

The present status of dentistry as a science and art is in every way ennobling and worthy of the best efforts of the best minds.

If the past is indicative of what may happen in the future, and our evolution has not reached its termination, we may hope that the time will come when the prevention of the many disturbances we now have to contend with may be accomplished.



PRESIDENT'S ADDRESS.*

BY J. H. MORRISON, D. D. S., CONNERSVILLE, INDIANA.

I wish to thank you very sincerely for the honor you confer upon me in electing me to the place I now hold in this society. Disclaiming any fitness for the place, I yet hope that your kindness shall not have in any way interrupted the wave of progress the society has enjoyed in recent years.

During the year just passed names have been added to our list of members, largely those of young men, who have their professional career, its opportunities and its possibilities still before them. May we not cherish the hope that the Indiana State Dental Association shall be helpful in leading them into wider professional opportunity and accomplishment. Be an inspiration to them in the years to come and be helped and honored by their efforts.

I wish this early to express my appreciation of the efforts of your executive committee, Doctor Thomson and Doctor Byram, who have labored so industriously to make this meeting successful and interesting.

I surmise that many of us fail to realize the amount of labor attached to the preparation for a meeting of this character. Much difficulty arises from the fact that many of us are neglectful of the communications of the committee. If we would all come closer in touch with those delegated for the time being to manage the affairs of the society, take a more personal interest in the affairs of the society, and answer promptly the communications of the secretary and executive committee when it is required, it would facilitate the work of the committee in a great degree.

You have been invited here to-day to discuss questions of vital interest to your every-day life and labor, and we trust questions, the better understanding of which, make life easier and more useful.

As we go through life, a thousand fancies lead us here and there and a thousand responses to the vexing problems of life offer. But time tests them all, many are found wanting and are soon forgotten.

*Presented at Indiana State Dental Society, June, 1904.

But the persistency with which a theory or method refuses to be put aside oftentimes testifies to its value.

The porcelain art has been knocking at the door of the dental profession for a quarter of a century; it will not away. It is the potters' art, the first of all arts, and that through which the human race has expressed itself from the mound-builder until now. Whatever the presence of the porcelain art at our doors may mean, it testifies to that undercurrent of protest against the too mechanical appearance of much of our work which none can deny.

Recognizing the importance of the subject, your executive committee have given porcelain due prominence on the program, and men skilled in its manipulation have been invited to read papers upon the subject and give clinics for our instruction.

Again we are to discuss questions bearing upon pathological conditions which the dentist is liable to meet in his work, and between these two wide extremes, an art demanding the highest manipulative skill and truest artistic judgment and sense of color, and a science calling for the most careful and painstaking investigation, lies the field of dentistry. Verily the dentist who thinks the science is to be mastered in an hour or that he does not need the help of the dental society is scarcely alive to the greatness of his calling.

It has been said that within the span of a single life the science of dentistry has passed from its crudest beginnings to its place of second among the arts that bless mankind and relieve it of suffering.

There be those here who can remember when its secrets were jealously guarded as have been the beginning of all the arts. The use of oil with which the artist mixes his paint was brought to Venice in the fifteenth century as a jealously-guarded secret to be wrested from its keepers by trickery. Many valuable arts have perished with the death of their keepers because hoarded for selfish ends.

The value of the dental art was such as to forbid it long remaining in hiding. It burst its bonds earlier than did its sister arts, and when men began to exchange opinions and methods, a liberal art was born that has made an enviable place for itself in the world.

Of the three great forces that have contributed to the de-

velopment of the dental art, the college, the journal and the society, the latter is by no means unimportant. Its opportunities for disseminating knowledge, of encouraging original investigation, and of doing honor to those who achieve, commend it to the earnest support of thoughtful men.

Many times in the past the fact has been deplored that the comparatively small membership of the Indiana State Dental Association did not adequately represent the body of Indiana dentists and an anxious wish expressed that it might be largely increased.

Thanks to the efforts of a few industrious spirits, the recent increase has been very gratifying and we hope it is but an earnest of larger things to come, and I could sincerely hope that our present convention might bring forth means to this end.

We will remind you, however, that the usefulness of this society will not depend as much on numbers as upon the character of its members and the earnestness with which we pursue our purpose. A study of the section of your constitution declaring the purpose of the society forbids the hope of gathering the majority into its ranks.

It reads:

"Its object shall be to contribute to the elevation of the dental profession by encouraging a free and liberal exchange of opinions and methods of practice and the literary discussion of subjects relating to dentistry; to promote the standard of dental education; to promote the usefulness, honor and interest of its members, and enlighten and direct public opinion in regard to the duties, responsibilities and requirements of the dental profession."

This declaration of a high purpose, framed how many years ago I know not, could scarcely be improved, and to such an unselfish purpose only the few will lend themselves.

There seems to be no reason, however, why our membership should not be largely increased, and none that I know of why Indiana should not maintain an association equal to any in the land.

The executive committee have sought the aid of present members in efforts to enlist new, and it may be well for me to

remind you that there is nothing that succeeds like a personal word to a friend or fellow practitioner, and every one of our present number could profitably interest himself in the effort for increase. Be it remembered, however, that while every honest applicant will be cordially received, the association in its purpose, its efforts and conduct of its affairs, and breadth of fellowship should appeal to thinking men everywhere and membership should always be at a premium, and a careful effort might be made to arouse consciousness of the duties and responsibilities of the profession and the advantages of association.

In endeavoring to secure a copy of the constitution, I learn that many of the members are without such, and I have no doubt many have never seen it. I would suggest that for the purpose of better informing our members as to the purposes and methods of the society that the constitution and laws be revised and reprinted and a copy placed in the hands of each member. I suggest that the matter be referred to a committee.

I also suggest the board of censors be constituted a standing committee on membership. This work has been falling upon the executive and unnecessarily adding to its burden.

Our declared purpose is to encourage a free and liberal exchange of opinion on methods of practice and the literary discussion of subjects relating to dentistry. Perhaps the most justifiable criticism of our work would be reluctance in discussing papers.

The papers and discussions of this society are of incalculable value to the thoughtful practitioner and this is true though they may sometimes be commonplace and though he may not always recognize it. No man knows his own power until he knows something of the doings of the men about him. He is not prepared to properly estimate his own work until he knows something of the possibilities and limitations of other men.

The act of one man is the inspiration of another, and there is no greater work for this society than to help men to discover themselves and their own and to inspire young men to the best that is in them.

We are mostly builders upon foundation other hands have laid. We practice principles others have discovered for us.

To some are given revelation of newer things. To some it's given to work out with patient toil a better way. But it is

too often the case that these toilers of the race have as their only reward the honor of the generations that come after. It is the high calling of this association to preserve the history and tried results of the past and the memory and honor of the men who have helped bring things to pass.

A generation of devoted spirits is just passing away—their faces and memory should not be suffered to fade. If I were to indulge here an ideal I could wish that this association, either alone or in conjunction with scientific societies of the State, might have in this city a permanent home properly equipped for its purpose and where models and scientific preparation might be preserved, illustrating the history and development of dentistry.

When a paper, prepared at the expense of some labor to the author, has been read before us it is a doubtful compliment to assume that that is all of the subject and pass it over in silence. We are not here as a debating society or to attack or belittle methods. We are here to know whether the experience of one man accords with that of another or whether a method violates a fundamental principle, or whether any one of us has found a better way, and to this purpose let us give ourselves. Ample time will be allowed for the examination of exhibits and social intercourse. Let us be in our places when the opening hour arrives that business may be dispatched promptly and every hour filled with pleasure and profit.

Again the purpose is "To promote the standard of dental education."

It has been said that the dental profession is not "scientific" and there are not wanting in recent dental literature places for more scientific methods.

While I am persuaded that the dental profession is not behind the other arts in the discovery and application of scientific fact, and while we remember that it is not so easy to reduce scientific data to a practical application in the dental field as it may be in other arts, yet there may be here food for reflection.

We are surrounded to-day with every evidence of the advanced state the production of instruments and appliances has reached. A bewildering variety of beautifully made instruments are at hand that would seem to meet every want—they are the essentials of dentistry. We honor the men who produce them,

yet we remember that "pure instrumentation" can do little toward real advancement.

It is only as we come to understand underlying principles, physiological, vital and chemical laws shall we be able to solve the great questions that confront us.

Fifteen years ago a great book was published on the subject of regulating teeth. It was a colossal work. It presented an array of levers, screws and burs, and springs, that made the heart of the timid dentist sink to contemplate. But a half dozen years given to a better classification of irregularities, and sets of twelve or fifteen pieces are offered as sufficient for all needs. A few more years of careful study of the subject and expert men declare that they number on the fingers of one hand the appliances necessary for successful work in orthodontia.

It will be so with other branches of the art. When a deeper knowledge is given to us we will accomplish desired results in a more simple way. The old Romans constructed piers of cement in the sea against which the corroding waves of old ocean have thundered for two thousand years. But before the corroding influence of the fluids of the human mouth we stand helpless, and the best we can do is to close up the breach with a substance wholly unlike the teeth and oftentimes a menace to the life of the organ, and the dental substitute we supply lacks very much of ideal sanitary and artistic character.

But I do not belittle the hour every day brings us nearer to our ideal. There are yet rich mines of knowledge to be opened. But revelations are not made to idlers or to men satisfied with accomplishment of the past. Things of value are not discovered by chance, but by patient searches for light.

The great artists of the past are not those who painted things as the world sees them; but those who, seeing things to which the common eye is closed, put them upon canvas or in marble and compelled the world to see.

What better way can there be of promoting the standard of dental education than that of encouraging observation and investigation and bringing before the profession the results of these, thus constantly reminding the profession of possibilities and responsibilities.

It has been said that a man cannot faithfully cultivate a single half-acre of ground without becoming deeper and more

reverent in character. At his feet every day are the finger marks of the Creative power that brought life into the world. His work is in unison with the purpose of nature. The mystic power of life responds to his kindly touch and decay follows his neglect. He cannot escape the sense of responsibility the Creator has laid upon the race. If it be so with him who has to do with the things of the lower kingdom, how much more with he who deals with the face, the thought, the habit, of a human being. Into every song that is sung, into every sermon that is preached, into every business appeal or story of love steals the silent influence of the organ upon which you work, modified, perhaps, by the work of your hands.

Let us shirk not the responsibility. It is yours to be teachers of men; it is yours to cultivate the best thought and spiritual power of your labor.

Lastly, in proportion as the society gives itself to the cultivation of the highest professional ethics, manhood and helpfulness, will it accomplish that whereunto it was born. Let us honor the men who founded our society by seeing that in our day it serves its highest purpose.

PRESIDENT'S ADDRESS.*

BY H. A. SHANNON, D. D. S., LINCOLN, NEBRASKA.

It affords me great pleasure to be with you on this, the twenty-eighth anniversary of the founding of this society. In 1868, the organization known as the Missouri Valley Dental Society was formed, and was composed of the dentists of western Iowa and Nebraska. This organization held regular meetings until and including 1876, at which meeting this society disbanded, the members from Nebraska agreeing to meet at Lincoln the following spring and the result being the formation of the Nebraska State Dental Society. The first meeting was held in the office of Dr. S. H. King, who was also the first president, there being about eleven in attendance—somewhat of a contrast to the meeting we have here to-day. Dr. W. F. Roseman, now of Sheridan, Wyo., who has, since leaving the State, been made

*Read before the Nebraska State Dental Society, 1904.

a life-member of this society, was elected recording secretary, and served in that capacity for eight consecutive years. This society has gradually grown, during these twenty-eight years, from a mere handful, until, to-day, we have an enrollment of something over a hundred. If it were possible to induce others to look upon these meetings as I do, we would have no trouble in increasing our membership to several times its present number. These yearly meetings can be made to serve as a postgraduate course to each one of us if we will only give it our support financially and also help out on the program in any way we can; even though what we give seems insignificant to us, it may be a help to some one else. If any member desires some certain thing demonstrated, he should feel at perfect liberty to ask the executive committee to furnish such a number on the program.

By way of explanation, I have been asked several times, after the program was out, why we did not have clinics along a certain line, demonstrating certain things, not altogether by members of the society, but some of those were from members of the society. It is impossible for the executive committee to determine what is in the minds of the society members unless they express themselves in some way, and if they would notify the executive committee along what line they would like to have work demonstrated, the committee would only be too glad to see that it is done. The committee is, usually, only too glad to receive suggestions from the members, for that gives them an idea of what is wanted.

Any person who is now a member, or who has been, cannot afford to become delinquent in his dues, for by so doing he not only robs the society of the fee which is justly due it, but does himself an injustice by remaining at home, or coming to the meeting and enjoying those things some one else is paying for. The yearly fee collected from each member means a very little to each individual, but when they are all taken together it means a sum sufficient to secure the very best talent the country affords. The man who remains at home in fear that his competitor may get some of his patients if he leaves, or in hopes that he may get some of his competitor's patients while his competitor is out of town, makes a serious mistake. The person attending these meetings, from the opening day to the closing, will gain, in knowledge, sufficient to more than compensate the financial loss

incurred by the closing of his office during so brief a period of time.

I would like to ask your indulgence for a few moments while I discuss some features which, I think, a new dental law should possess, should contain, and a few of the changes which should be made in our law.

First, I will take up the subject of violations of the law, and the means of raising a fund for the prosecution of these violators.

The experience which the State Board of Dental Examiners and the dentists of Omaha have just had, should be fresh and vivid enough to the minds of the profession of this State to make it an easy matter to convince the most skeptical that the time is now ripe for the creation of a fund to defray the expense incurred by the prosecution of such parties. I do not feel that the expense of conducting such a prosecution should fall upon the members of the profession in that town or city alone, but should be defrayed from a fund accumulated by taxing each member of the profession in the State a yearly fee. By this means the board would be able to push the various cases that present themselves, even from the rural districts.

It is a well-known fact that the board is always hard up, always in debt, and it has been, so far as I know, ever since we had a board.

As the law now stands, the money collected by the State Board is hardly sufficient to meet the necessary expenses of that body, and, where additional expense is incurred, it must be met by public subscription. If it is a known and well established fact that the State Board of Dental Examiners have at their disposal a fund sufficient to conduct any and all trials, against violators, to the courts of last resort, we will not have so many poachers.

Secondly, I would recommend increasing the registration and examination fee collected by the State Board. We find that in nearly all States the fee ranges from twenty dollars up. The money collected, under the present law, is hardly sufficient to defray the necessary expenses of the board, and, therefore, I would urge the increasing of the fee.

Thirdly, the members of the State Board: In a prosperous

and growing State like Nebraska, that can boast of her five hundred dentists, it seems a shame that they should ask three men to look after the interests of the dental profession for the paltry sum of three dollars a day, and stand their own expenses out of this. The sum which they receive is about sufficient to pay their hotel bill, without any of the accessories which usually accompany such gatherings. The expenses at home are going on just the same as though their offices were open. How many are there of us who would not hesitate before accepting such an appointment? As I understand it, the pay only covers the actual time they are in session, which leaves nothing for the hours they devote to the profession when the board is not in session. With an increase in pay it might be necessary to limit the number of days each year the board could draw pay, as there might be a tendency to put in more time than is really required, and, in this way, reduce the amount collected, for the prosecutions, to such an extent that there would be no balance on hand for the purpose. I would suggest that the pay of the board be made equal, at least, to the income of an average dentist, per day.

Fourth. If some way can be devised, which will hold in the courts, to restrict the advertising men from violating the code of ethics in such a radical manner as they do, it will, undoubtedly, be a boon to the public, as well as to the profession. In framing this law it might be well to employ the services of a good lawyer, so that each phase of the law will be constitutional and no loopholes left for offenders to crawl out of.

In order to secure the passage of such a law, and not have it torn to pieces by the legislature, it will require the unanimous and individual effort of each member of the profession in the State. A committee should be appointed, at once, to take the matter in hand, and get it in condition at an early date. As soon as it is in the proper form to be presented to the legislature, a copy should be mailed to each dentist, accompanied by a letter setting forth the reasons why such a law is not only desirable but necessary. As soon as the election is over and it is settled who the members of the legislature are to be, an effort should be made by the dentists to see these men personally and impress upon their minds the necessity for the change desired in the law,

and that this change is for the protection and welfare of the public as well as the dentists themselves.

In order that the membership of the society be kept up, and new members of the profession, throughout the State, brought into the fold, it might be well to have a committee on membership, whose sole duty it will be to see that pressure is brought to bear on some who are a little slow in affiliating themselves with the society. The executive committee has its hands full in preparing the program, without taking upon itself this additional work. A list of good, desirable men can be secured from the various dental supply houses.

In behalf of the members of the Nebraska State Dental Society, I desire to thank our visiting friends for the active part they have taken in helping to make this one of the best meetings in the history of the society. I also wish to thank the members of the executive committee for the active part they have taken, and also to express my appreciation to the members for their hearty support.

THE SCOPE OF HISTOLOGY IN DENTAL TRAINING.*

BY FREDERICK B. NOYES B. A., D. D. S., CHICAGO, ILLINOIS.

It is a great pleasure to me to be with you this evening, to present the claims of the subject which has received the best of my attention for nearly ten years.

In the last quarter of a century the march of progress has been very rapid, and dentistry has not been an exception among the arts and sciences. In this time the general character of practice has almost completely changed. Not long ago I heard a very well and honorably known man say that when he was starting in practice, about forty years ago an old practitioner of that time said to him, "If your fillings will pay your office rent your plates will give you a good income." And now I venture to say there are few men whose plate work throughout the year would pay their office expenses. The same man also told me that the first day he was in his office after the close of the war, he extracted 240 teeth, preparing 22 mouths for plates. This not only

*Read before the Odontological Society of Western Pennsylvania, 1904.

illustrates very forcibly the differences of practice between the old days and the present, but also shows the very different way in which the public regarded the care of the teeth.

These changes have been at least partly brought about by the development of the technical training in all the procedures of operative dentistry, and in the application to practice of one science after another, until now the electric engine, the galvanic battery, the cataphoric apparatus, the X-ray and the porcelain furnace are no longer novelties in the dental office; and the teeth that were consigned to the forceps without a thought, are now made to carry crowns or bridges, and the plate is put off as the last resort, to which comparatively few are driven, because the dentist is able to do things that would have been impossible twenty-five years ago.

It is true that in this desire to save teeth, the happiness and general health of the patient are too often forgotten, and that patients have been driven frantic through suffering which was a shock, if not an injury, to their general health. The teeth are important, but there is a limit to their value, and we are not justified in destroying a patient's courage or injuring his general condition, to save a tooth. I do not mean to belittle the value of a tooth, but occasionally at least there are cases when the value is set too high.

The change in what the public expect and demand of the dentist as a man in the community in which he lives, has been fully as great as the improvement in his technical ability. He is more and more looked to as a man of special training and education, and so expected to take an interest *in* and responsibility *for* public interests. He is expected to be an active leader in educational and scientific affairs. The diffusion of knowledge and scientific thought has been very rapid, and through the increased facility in transportation and communication, and the development of current and periodical literature is sure to increase still more in the future. and the dentist is looked to as a leader in these lines of activity. As centers of thought develop he is expected to be a factor in them.

Professionally he is expected to be more than a tinker or an artisan, practicing entirely by empirical rule. Patients less often consult him to stop a tooth-ache or insert a substitute for lost teeth, and more often to take care of their mouths. They are

more often referred to the dentist by the physician, and the patient expects the dentist to recognize and be intelligent in his consideration of general conditions. Many diseases and pathological conditions come naturally first under the observation of the dentist, and he cannot escape criticism if he fails to recognize them and refer them to the proper person for treatment. On the other hand, he is not in danger of being thought less skillful because he recognizes these conditions. The dentist is more often called in consultation with physicians, and he cannot be intelligent in such consultations unless he has a broad knowledge of the phenomena of life and the principles of physiology and pathology.

The development of these new conditions and requirements of practice have not been recognized by many of the old practitioners, and by still more of the very young ones, who think that they can make a living by "plugging cavities" and inserting artificial substitutes, by a cut-and-dried rule without regard to structure or condition. These men have and are exerting a very bad influence over the men who are coming into the profession. They inspire students with the idea that they want to get all they can of how to do things, but all of this anatomy, physiology, histology and pathology is just stuff put in to keep them longer in school, and does not amount to anything in practice. "All your knowledge of these subjects," they say, "will not help you to fill a tooth or make a bridge." This statement is partly true, though largely false. These are the very subjects that make professional men of the students. They do not help him to execute treatment but they do enable him to know what he should do, and when and how he should do it. They bring him patients, and still more they enable him to hold them.

I want to take this occasion to urge all practitioners in talking to students to impress them with the value of the so-called theoretical subjects. They are ready enough for the technical and practical though much of it they do in a thoughtless and perfunctory way, because they do not see the value and application of it. In some ways the eagerness for the mechanical and aversion to the scientific parts of training have seemed strange to me, for the mechanical and technical must be followed and practiced through life. The practitioner can learn how to do new things; he can work out new methods for himself; but he cannot get the knowledge and scientific basis for

work so well alone. If he throws away his opportunities in school they are gone forever, and he has cut off the roots from which he should draw the food for growth. As a profession, then, let us impress those seeking to enter the profession with the value of the best possible foundation. The developments of the future are sure to make far greater demands for broadness and depth of knowledge not only in the sciences whose principles are applied in the mechanical execution of treatment, but of the phenomena and mechanism of life, for only in the better knowledge of cell life and activity lies the future of the great field of prophylaxis, which is sure to occupy a focal point in the thought of the profession in the future.

In at least some parts of the country we have had recently a rather active discussion of the relation of the dental and medical professions. Viewed from a broad standpoint, there can be no question but that dentistry is a department of medicine. If medicine is the treatment of disease, dentistry must be defined as the treatment of the diseases of the teeth and mouth. The profession has been so much occupied in the mechanical replacement of the damage produced by disease that they have often forgotten to study the disease, and have not made their operation primarily as treatment of the condition. Educationally and legally the two professions are entirely independent and distinct, but as a branch of the healing art, dentistry takes its place as a specialty of medicine. It has been said that it was impossible that a man can be a specialist unless he is first a member of the profession, but this is viewing the subject technically from educational and legal aspects. As a matter of fact, dentistry is so special a specialty, and so different in its technic, that the purposes of education are best served by giving a general medical education in the schools of specialty, and this is exactly what has been done. The only fault to be found is that the training has often not been thorough enough, and that the technical departments have absorbed all of the time and energy of the student.

It needs no argument to prove that the treatment of all diseased conditions is dependent upon a knowledge of life, and, since the establishment of the cell theory, life must be interpreted in terms of cell activity. Before the establishment of the cell theory, the treatment of disease was necessarily empirical in character, based upon the recorded results of experience. Since the discov-

ery of the cell structure of the animal body and the development of our knowledge of the mechanism of the cell life, all of the phenomena of life have been reinterpreted in terms of cell activity, and all pathology restated in terms of tissue injury or perverted function. It is, therefore, no longer rational to treat living tissues by any rule without a definite idea of the effect desired upon the cells and tissues. Histology, or the study of the cell structure of the tissues and organs of the body, becomes the very foundation of the rational treatment of diseased condition. Without a knowledge of the cells and their activities, how can a man have any rational idea of what he is doing in the treatment of the alveolar abscess, or any other condition which a dentist is called upon to treat?

The entire development of surgery has been the result of the cell theory and the knowledge of the conditions of cell life, resulting from these studies. It is true to say that a surgeon never closed a wound or healed an abscess; the closing of the wound and the healing of the abscess was done by the cells of the tissue; what he does is to control the conditions so that the cells can do their work. In discussing methods and describing procedures the role of the cell is sometimes forgotten, and methods are followed by rule rather than reason.

It has been argued that the dentist needs to know the histology and anatomy of the region which he is to treat, but that he should not spend time in the study of other organs, but it is impossible to understand a given region without a broader study of life, and it is as a study of life and to reconstruct the bodily functions in terms of cell activity that the dentist should study the histology of all of the organs of the body. The physician needs to carry this study further so as to give him the basis for the understanding of the pathological conditions to which all of the tissues and organs are liable, which must be the basis for his treatment of their diseased conditions, but the dentist needs to carry his study to this stage only for the tissues of the teeth and mouth.

The histology of the dental course, therefore, naturally divides itself into two parts: first, general histology, including the histology of the organs; and second, dental histology. In the general histology the object of the course is the study of the phenomena of cell life, and to reconstruct the body in terms of

cells and their products. The student should have some study of biology before commencing his professional studies, but as very few have had any such work it makes the teaching of this subject much more difficult, and it is necessary to begin with some preliminary work, which is really a study of the single-celled plants and animals as the best way of arriving at a knowledge of cell structure and the activities of protoplasm. The common forms of life found in the stagnant water of ponds and ditches are beautifully adapted to this work. The cells are large and can be seen with comparatively low power; there is a great variety of interesting and beautiful forms. It opens a new world of creatures to the student, and the movements of these small forms are always interesting. The cells are found singly, in groups, in colonies, and united in tissues, and the student is led to the idea that the cell is in the study of life, the unit of form and the unit of function, in a way that would be very hard to convey from the study of the human body alone.

This should be followed by a study of the elementary tissues so that their structural characteristics are understood, and that they will be recognized as the elements of which the organs are composed, and, finally, a study of the organs of the more important systems (circulatory, alimentary, glandular, excretory, respiratory) so as to interpret their functions in terms of cell activity. This gives the necessary foundation for the closer study of the tissues which are especially important to the dentist, and which should be taken up at a later time. In the general histology, the relation of cells to intercellular substance should be especially considered and emphasized throughout the work, for, in the structure of the teeth the intercellular substances are of the greatest importance, and the physiology and pathology of the teeth cannot be understood unless we have a clear idea of the relation of the living protoplasmic portions of the tissue to the non-living formed materials which have been produced by cell activity. The importance of this phase of the subject cannot be too strongly emphasized, for it must be constantly in mind in the studies of caries and erosions, and in fact, all of the diseases that a dentist is called upon to treat.

In the study of life, each student must acquire knowledge by observing the structure of cells and the action of protoplasm. It is impossible to give him the results of work of others, for he

can understand them only after making the observations for himself. The work which others have done enables him to gain the same insight into the mechanism of life which has been slowly acquired in the development of knowledge, in a comparatively short time, but he must study the machine if he is to repair it when out of order and control the conditions in which it will work properly. It is exactly as it is with mechanics, and as has been long recognized in our technical training. One can learn more of the principles of mechanics and the application of force in the construction of one simple machine than in reading the descriptions of a hundred more complicated ones, and the laws of force take real form and meaning only when they are put in practice, so the conditions and vital manifestations of cells mean something to us only after they have been observed, and this can only be done in good laboratory courses. No one would expect the student to learn how to make a bridge or a filling by hearing the method described and seeing illustrations of it, but he must see the work done and do it for himself in the laboratory, and after making one case he is able to understand the description of others. But in the infinitely more difficult and delicate mechanisms of the tissues we expect the student to learn the machine and how to repair it without any observation of it in action.

The second part of the course should be given in a separate year, and should require that the first course be previously completed, for the work of the second course presupposes the knowledge of tissue structure already acquired. In this course, the objects to be acquired are, not only a knowledge of the structure of the tissues as a basis for the understanding of the diseased conditions to which they are liable and the methods of their treatment, but also a knowledge of their structure which will facilitate and improve the execution of mechanical treatment, for, in the replacement of lost tissue, we have to consider not only the vital conditions, but also the mechanical requirements.

It is not enough that the tissues be studied from the abstract, scientific point of view, but the relation of structure to practice must be constantly pointed out, and this can only be done by one familiar with the requirements of practice. The physical properties of the enamel, for instance, are an expression of the microscopic structure of the tissue; it is necessary, therefore, to study the structure with special reference to these physical properties,

and especially the structural requirement of enamel walls to obtain sufficient strength to meet the mechanical conditions. Enamel will cut or split easily in some directions and under some conditions, and the directions of cleavage should be the determining factor in fixing the inclination of enamel walls in the preparation of cavities. I have often said that a study of enamel will do more than any other thing to increase rapidity and facility of operating, and that a correct handling of enamel walls and margins is one of the most important factors in permanence of operations. Perhaps the best way to bring out what I conceive to be the importance of the subject is to go over, somewhat in detail, the headings of the course and their practical bearing.

The work is commenced with a discussion of the homologies and analogies of the teeth, and the character of their relation to the bone of the jaw. This is followed by a study of the dental tissues, their functions and distribution in the make-up of the teeth, and brief consideration of the comparative histology of the teeth of the various classes of animals with special reference to the distribution of the dental tissues as adapted to special functions. The dental tissues are then taken up, one at a time, beginning with the enamel. This is first compared with other calcified tissues, in origin, degree of calcification, relation to the formative organ, and form of structural elements. The enamel stands alone among calcified tissues, and cannot be understood unless these differences are in mind. The structural elements of the tissue, rods and cementing substance, are studied in isolation, and as arranged in the tissue and the action of acid on the tissue and relative solubility of rods and cementing substance is noted. The bands of Ritzieus are studied as the record, in the fully formed tissue, of the stages of growth, showing the lines of increment in the enamel cap. The direction of enamel rods in the architecture of the tooth-crown is then taken up, and the relation of rod-direction and structure to cleavage. In this study it is necessary to have sections from the different classes of teeth, and in order to make the study of value the relation of the section to the crown must be noted. In practice, we are obliged to consider rod directions with reference to the surface of the tooth and its anatomical markings, and if we are to gain a knowledge which is to be of practical value, we must know the position and direction of the section with reference to these things. This is fol-

lowed by the structural requirements for strong enamel walls in general, and the means of obtaining them in various conditions. The points of beginning calcification are then considered, and the lines of union of enamel plates producing the surface markings, and in the structure of the tissue, lines of weakness and natural defects. The structure of enamel walls are then studied in the various typical positions and classes of cavities, and, finally, the structural effects of caries and the manner of its attack on the tissues.

The enamel is followed by the dentine, studying the character of its matrix, the size, direction and character of the tubules, the natural defects in the formation of the tissue, and the difference in structure between primary and secondary dentine, and the effect of the formation of the secondary dentine in reducing the sensitiveness of the tooth. The cementum is studied primarily with reference to its functions in attaching the fibres of the peridental membrane, and so fastening the tooth in its position. The structure is compared, in the different parts of the root, and with the structure of bone, then the formation of the tissue to repair injuries, and absorption of the surface of the root and hypertrophies of cementum or the so-called exostosis are studied. The cementum is followed by the pulp, studying first the general character of the tissue, distribution of cells, blood vessels and nerves, and the relation of the odontoblasts to the formation of dentine, and in connection with the nerve endings to the sensitiveness of the dentine. The characteristics of the blood-vessel walls are of especial importance with reference to the pathological conditions to which the tissue is especially liable, and, finally, the histological changes produced by the pathological conditions of the pulp are studied.

Before studying the peridental membrane, the bone and periosteum are taken up, studying especially the differences in the attacked and unattacked portions and the importance of the areas of attachment in determining the direction of the burrowing of pus. In connection with the periosteum of the hard palate, the gum tissue is studied, and in connection with the peridental membrane, the character of the epithelium in various parts of the mouth cavity. The peridental membrane is studied in reference to its functions, the support of the tooth against the force of occlusion, its attachment to the bone, the formation of bone and ce-

mentum, and the sense of touch. In taking up these topics, the direction and arrangement of the fibres is first considered, later the distribution and function of the cellular elements in connection with the functions of the membrane, and especially the natural and artificial movements of the teeth, and the diseases to which the membrane is liable. The course is closed with a few lectures on embryology, beginning with the development of the germ layers, and the formation of the embryo, studying especially the folding off of the head, the formation of the brachial arches, and the separation of the nose and mouth cavities, so developing the positions in which the tooth germs make their appearance, after which the formation of the tooth germs and the calcification of the dental tissues follow. The last topic of the course is dentition, studied in connection with the formation and absorption of the roots of the teeth and the development of the face from childhood to maturity.

The purely technical part of the histological work is of no small value as finger training. The dentist requires fingers possessing not only strength and accuracy, but also delicacy of manipulation, and in no place do they receive better training in this direction than in the handling of delicate sections, and the need of such training is evidenced by the clumsiness of students in the beginning of the course. The finger training and the technical ability are never to be lost sight of in dental training, but we must remember that if dentistry is to retain its place as a profession the practice of dentistry must be regarded as the treatment of disease as well as the repair of damage produced by disease and that broad knowledge must be the basis of practice. The theoretical and practical side of training bear the same relation as the fertilizer and cultivator to the crop. The seed is planted in some natural ability; if fertilized without cultivation the crop will be choked in the weeds of awkwardness; but if the fertilizer is left out and the cultivator used with ever so much diligence and skill, the crop will never reach the fullness of its possibilities.

I have spent, perhaps, too much time over this subject, but I hope it will be pardoned for my interest in the development of dental education. We have not recognized that there is an element of fact in the German objection to the use of the degree of doctor by the American dentist, for, while his mechanical ability places him in the front rank in the execution of treatment, the

knowledge of life and disease represented by the average D. D. S. degree is certainly deplorably deficient. Let us change this condition, not by going to medical schools for our training, but by giving good medical training in our dental schools, and I believe the recognition will be given.

THE DUTIES AND RESPONSIBILITIES OF THE TWENTIETH CENTURY DENTIST.*

BY H. C. BROWN, D. D. S., COLUMBUS, OHIO.

In presenting this subject I can only hope to call attention to certain existing conditions and our opportunity to wield a marked influence, either beneficial or otherwise, upon the profession of the future, and through them, necessarily the public.

Reviewing the past quarter of a century in dentistry, it reveals rapid progress, notable achievements, and many men who have spent much of their time and energy to place our profession where it is to-day. To them we owe a debt of gratitude, the magnitude of which is seldom realized upon first thought; their influence should be felt for many years and act as a stimulus to our younger members for an increased effort and greater achievements.

The dentist of to-day comes upon the stage of action when the environments are the most favorable, unless it be from the remunerative view point.

The educational requirements for entrance to college have gradually advanced; likewise the college curriculum, the teaching facilities, the time to "four full regular courses of not less than seven months each in separate years," and last but not least, dental legislation which has been a potent factor in all this. To be a graduate of a dental college of to-day or in future years certainly will carry with it some additional merit.

However, after the National Association of Dental Faculties adopted the four-year course, there has arisen some dissension, and it has even been argued by some members of the association that this additional year is in excess of any necessary or imaginary need, and that it is not essential that a student spend

*Read before the Northern Ohio Dental Society, June, 1904.

four years at a college in order that he be qualified to practice dentistry, and therefore, they consider it imperative that they return to the three-year course.

Two wrongs never right anything, and now to return to the three-year course will certainly be taken, by some at least, to signify a retrogression in dental education and something it will take the profession several years to overcome.

The college authorities certainly knew that raising the course to four years would necessarily reduce their classes for a year or so, just as it did when they raised it to three years, but now that they have gone through, and yet survived, the first year of this reduction, it seems to me they could, from a financial standpoint, endure those to follow.

Last year there were in round numbers twenty-three hundred graduates from the various dental colleges in the United States, besides two hundred or more became legal practitioners by passing the various State Examining Boards, and supposing that last year was not very different from this as well as the two or three years prior; thus it will readily be seen that a "short crop," so to speak, for a year or so will not necessarily endanger the lives of those at present in the profession from overwork nor the teeth of the public from neglect, provided many of those who are desirous of practicing are given the opportunity.

Therefore, when we recognize that dentistry during the past twenty-five years has made more progress than any of the other professions, we should have every confidence that there are sufficient influential men in the profession to assure us that this advance movement shall not be reversed.

Recognizing these conditions, we are reminded that we have "duties and responsibilities."

Our "duties" may be divided into duty to the public, profession and self.

After meeting all requirements for qualification to practice and displaying our sign to the public, then the public can expect certain considerations. We should be prepared to render service that can be obtained from the progressive dentist and in doing so we should never forget that we are operating upon a human being, and as this meeting has been announced as one of anti-pain, it may be proper to suggest that the chances are this being is in possession of all the special senses and due precautionary

measures should be employed lest this being should, on entering our office, see a place of which one sight will be sufficient; feel so severe a pain that it may extend to the second generation, if not further; detect the odor of an offensive cuspidor, cigar, cigarette or even attractions of a personal nature which should have been eliminated by a bath.

Any or all of these may be so conspicuous and objectionable to some as to prevent further visits to your office.

In other words, our office should be made and kept as attractive as possible and our equipment selected so as to assist us in rendering the patient the best service with the minimum amount of pain.

I believe some dentists would live longer and have better health were they not so sympathetic; yet there is much sympathy due a patient, especially in some operator's hands, and I know of no better way to impress this upon a dentist than to turn tables, so to speak. I would suggest that a dentist have a tooth filled or some other similar operation every few months, some should go very often in order to have effective results with their clientele. This may seem irrelevant, but nothing makes so lasting and as affectual an impression upon a person as when conditions are brought home.

Speaking from a personal experience will say, after having had a very sensitive cavity prepared, but of course my teeth are hypersensitive, it most forcibly impresses me of the position of the "under dog," and I endeavor to be more considerate, for a time at least.

It is true I have never been fortunate enough to be in the hands of an anti-pain enthusiast, if so I have never recognized him as such.

However, this movement of anti-pain is certainly commendable and we can feel assured that this is one advance for which the public will stand and, if necessary, they will aid us to the extent of advanced fees in order to secure the desired results.

That all persons are naturally opposed to pain is easily understood; likewise, the visit to a dentist and when the pain can be obviated, whether by improved appliances or methods, suggestive therapeutics, christian science or from other sources unknown at present, it will result in much benefit to all; then we will be prepared to do more work with less fatigue, accom-

plish better results and secure the full approbation of our patients.

We are each indebted to our profession, collectively and individually, and should conduct ourselves in such a manner as to not bring reproach when possible to avoid it.

Be a clean man in every sense of the word and act with others with the same consideration you would like shown to you.

Remember, the profession only advances as the individuals, or many at least, advance; therefore, strive to be in the front ranks.

A dentist with skill, ambition and a high ideal, combined with application and perseverance will certainly succeed; there is always room at the top for such persons in any vocation.

It may not be beyond the memory of some present when dentistry was practiced as secretly and selfishly as circumstances would permit, while now the reverse is true, as anything of merit, that proves successful in the hands of most dentists, is given to the profession at large.

The dental societies and journals have both been influential in this transition and alike deserve due credit.

They have gradually, but surely, forged ahead until to-day they stand shoulder to shoulder, each dependent upon the other for the support received and each willing to assist us if we feel the need of their assistance.

The dentist who thinks when commencement day is over that he has secured enough theoretical and practical knowledge to carry him through his professional life, certainly has no intention of practicing any great length of time, even though he may graduate at this advanced day of college work.

A good start means much and every young dentist should soon become associated with one or more dental societies and subscribe for such dental journals as will keep him posted on matters so intricately related to his needs, as ignorance is not excusable in this day of enlightenment and opportunities.

It is not supposed that many enter our profession wholly to sacrifice energy, health and time for no other purpose than to relieve suffering regardless of personal interests. We are supposed to be human at least, regardless of contra accusations.

Our work is of a confining, nerve-racking tendency and there is no very essential reason why we should forget that the

laws governing persons of other vocations does not apply to us, save that our hours of recreation should be increased rather than diminished.

The dentist who devotes eight hours of each twenty-four closely to the chair and then attempts to put three or four hours in laboratory work so that his practice may be increased or save the salary of an assistant, will sooner or later realize his mistake.

The question of remuneration is a difficult problem to solve, but every dentist should realize that his days of usefulness are numbered and when a certain amount of the energy stored in this wonderful mechanism of ours is expended, that we are not always the first to discover this condition and instead of an increased, a decreased practice is the result.

This may occur to a dentist when a physician or an attorney would be at the height of his professional career and in a better position than ever before to serve his clientele for many years, thus enabling either of them to reap benefits after a dentist's days of active practice are ended.

While we note the advancement heretofore mentioned we cannot refrain from mentioning the fact that other advances have taken place and must be considered as pertaining to the interest of self.

The dentist of to-day has more time and money in his profession than before. All current expenses are materially increased. Others are recognizing this situation. Labor is organized and makes its demands and receives as a rule double the wages it received fifteen years ago. Capital is combined, insuring good profits even though they pay increased wages.

Our rents have increased, likewise many of the materials we use, thus altogether we see the advance, but how about our fees? Have they, with the profession at large, proportionately increased?

It is true we are confronted with a condition not altogether similar to other professions and trades; the advertisers may be somewhat responsible for this.

Suppose, for argument's sake, we admit they are educating the public and may do much work that would not otherwise be done; nevertheless the principle is wrong; on the other hand, many of their patients are those best able to pay for the services of a person who does not place himself before the public as "the

only at so much per with a discount of ten per cent when this ad. is presented."

While we extol the American citizen for his progressive spirit and advanced education, yet they are leaders at times on "long shots" or "something for nothing," and have been referred to as "easily humbugged." Nothing is so attractive to a shopper's eye as a "marked-down sale," but we hope for the day when merit alone will tell, not glaring advertisements of "painless dentistry at reduced prices."

Many of the advertisers do, and many more are capable of doing, good work, but the tendency is to degrade instead of elevate the profession, and where an assistant's position depends upon the number of persons he can convince should have a ten or fifteen dollar plate instead of a three or five as advertised and the amount of work he turns out, or rather cash turned in, then under these conditions the best results cannot be expected.

Our responsibilities may be divided into legal and moral.

We are legally responsible for the rendering of service that is equal to that rendered by the average practitioner and not legally held responsible for more.

Our profession is frequently judged by the actions of a very few of its members, thus it behooves us to conduct ourselves accordingly.

When a half dozen dentists in a city of equal number thousand population are on friendly terms, considerate of each others interest and not "knockers," they are more prosperous, better contented and have the respect of the community in general. The opposite is true when the conditions are reversed.

The dentist of to-day is responsible for much concerning the future of our profession. We complain about numerous things and yet we are absolutely responsible for the existing conditions.

Training and habit have much to do with all and this applies alike to the dentist and his patient. We should accustom ourselves to be kind and considerate with our patients, but at the same time be firm in our rights and never permit the patient to be the operator.

Our time is our principal "capital and stock" and our appointments should so be considered. A person of any business ability can readily be convinced that a busy dentist is justified in

making a reasonable charge for a broken appointment, when due notice is not given of inability to keep the same.

With the seemingly over supply of dentists, the advertiser and the desire of the beginner to make ends meet, competition, as it were, does not permit of many receiving the compensation their services really merit; likewise, collections are deferred for fear of offending a patient, but to a great extent we are responsible for these conditions.

The dentist with a good system in all things, such as appointments, records, collections, etc., is to be congratulated, and while he may lose an occasional patient he is commended by many for having a system and being firm in his insistence that his system be respected.

The public is quite ignorant regarding our profession and the care of the organs we are called upon to treat.

I firmly believe that fully sixty per cent of the parents, until their attention is called to the error, consider the first permanent molar as a temporary tooth, permitting caries to progress until the necessary attention cannot but make more or less of a coward of the child.

We are largely responsible for this existing ignorance and can only hope for relief in some well-defined concentrated effort to educate the public to the needs of the day, which will greatly assist us in our work with those at an age when the first impression is a lasting one, besides the rendering of this service is very trying on the dentist and the best results are not always obtainable.

Many papers pertaining to dentistry are written, read and published annually; but they treat mainly of subjects of interest to the profession, are read at dental meetings and published in dental journals, thus the public has no opportunity or desire to read them and would not derive the desired benefits if they did; therefore, to reach the public another course must be pursued.

Briefly, I would suggest the teaching of dental hygiene in the public schools and institutions, if only to a limited degree; the securing of local members of the profession to read papers before the various County Teachers Institutes and Teachers Associations and through them impress upon the children of to-day the importance of oral hygiene; the publishing in the magazines of carefully prepared papers by men of reputation who can in short articles, eliminating technical phrases, present the impor-

tance of the dental organs and the necessity for individual care; also, the importance of regular examinations of the teeth by their dentist at stated periods, acting on the theory that "a stitch in time saves nine."

About all the public sees relative to our profession is the stereotype cuts of sweet faced maidens with pearly teeth and the various substitutes offered, accompanied by strong claims of ability, etc., together with the usual twenty-year guarantee.

It would be a blessing to humanity if some multi-millionaire would endow some institution with funds sufficient to establish and keep in operation a department for advanced scientific study and research; thus, in so far as possible scientifically eliminating the predisposition and environments of dental caries.

Reciprocity is something that has long been discussed and much progress has recently been made, but it is far from general in its action.

The lack of uniformity in legislation of the various States relative to the practice of dentistry is responsible for much of the present conditions.

Whenever it is possible for the profession of some States to recognize the rights of others, even though the other States may not be as far advanced in many respects, then we can hope for uniform dental legislation, provided the profession at large will use their influence to secure the same.

However, it is to be deplored that many are very indifferent as to the outcome of any movement, regardless of the good features embodied, when it requires any effort on their part, many thinking that it is meritorious and will certainly prevail and through over-confidence it is finally lost.

In conclusion, we each have our part in life's drama, and I am reminded of Longfellow's "Psalm of Life," and cannot refrain from quoting:

"Lives of great men all remind us
We can make our lives sublime,
And, departing leave behind us
Footprints on the sands of time;
Footprints, that perhaps another,
Sailing o'er life's solemn main,
A forlorn and shipwrecked brother,
Seeing, shall take heart again.
Let us then be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labor and to wait."



SUGGESTIONS

TO REDUCE FUSING POINT OF PORCELAIN.

To make a high-fusing body low-fusing, add potassium or sodium to reduce its fusing point.—*Dental Hints.*

TO OBTAIN ACCURATE SHADE.

Always obtain the shade with the tooth wet, as drying it alters the color.—*Dental Hints.*

TIN AND CEMENT FILLINGS.

Doctor Schourer.

Pulverized sponge tin and cement powder, mixed with the cement liquid, becomes hard and polishes with a metallic surface.—*Dental Cosmos.*

PORCELAIN AS A BACKING.

E. P. Beadles, Danville, Va.

In making a Richmond crown, the color is seldom the same after soldering, hence it is best to use the furnace and back them with porcelain instead of gold.—*Dental Hints.*

FISSURE BURS MAKE GOOD MANDRELS.

R. G. Joslin, St. Ignace, Mich.

I have found dull fissure burs, especially the taper "cross-cuts," to make excellent mandrels for mounting small gem and carborundum stones, with shellac, for polishing or grinding.

UTILIZE GOLD TRIMMINGS.

When making gold crowns the trimmings having solder on them should be laid aside and at a spare time melted together, making a good piece of high grade solder.—*Dental Hints.*

A HINT TO PORCELAIN WORKERS.

Walter G. Dunham, Albion, Mich.

Porcelain filling workers: Moisten both the cavity and filling with the liquid of your cement just before setting in the usual way (wipe off excess) and notice how much more adhesion you get.

A GOOD SEPARATING MEDIUM.

A good separating medium is made by dissolving paraffin in gasoline. Put in all that the gasoline will take up. To use, spread solution over impression lightly with a camels'-hair brush.—*Dental Hints.*

TO REMOVE RUST FROM METAL.

To remove rust from metal, cover the metal with sweet oil, rubbing it in well, let stand 48 hours. With a piece of cotton wool apply oil freely, then rub well with powdered unslacked lime.—*Popular Mechanics.*

LACTIC ACID FOR CLEANING GLASS TUBES.

Some of you have experienced difficulty in keeping the glass tubes clear. I did. So I tried sulphuric, hydrochloric and nitric acids without success. One day my "Mary" said, "why not try lactic?" It was like an inspiration. And I want to show you how it works. Just a drop put in the tube and then swabbed out with a bit of cotton fastened on binding wire will do the work.—*Dental Register.*

A SOLDER PILOT.

In soldering often the solder will not flow just where you wish it to go. Take an inch or two of the carbon from a pencil and fasten with binding wire to an old excavator and use to direct the solder when in a molten state.—*Dental Hints*.

TO PREVENT CHAPPING OF HANDS.

Grafton Munroe, Springfield, Ill.

Violet talcum powder in a small quantity is useful to dry the hands after washing and serves a double purpose of giving a pleasant odor to the hands and in winter helping to prevent the chapping due to frequent washing.—*Dental Review*.

QUICK INVESTMENT MATERIAL.

For quick investment for soldering bands, clasps and teeth. the following mixture may be kept ready prepared on hand: Equal parts of prepared chalk and fine sand kneaded in glycerine enough to make a plastic mass similar to mouldine.—*Dental Hints*.

QUICK REPAIR.

Dr. J. F. Steele, Eagle Grove, Iowa.

Cover inside of plate with thin wax. Have patient bite down hard while warm. Apply crushed ice in the napkin to cool. Trim off surplus wax and invest in mold. Separate and drill a row of holes around edges of plate. Pack and vulcanize.—*American Dental Journal*.

TO MARK LOCATION FOR TOOTH PINS ON BACKING.

There is often a difficulty in finding the right spots to drill through the backing when a broken facing is to be replaced upon a bridge. Flow a little wax upon the backing, place facing in proper place, press pins through the wax and then drill with proper bur.—*Dental Hints*.

ERRATA.

In the editorial, February number of THE DENTAL SUMMARY, page 151, eighth line from bottom of page was misplaced by the printers—It should have followed the sixth line from bottom.

In the January number SUMMARY, in Doctor Simpson's article page 40, the word "silver," in fourth line from bottom of page should be "solder." On page 41, ninth line from bottom, last paragraph should read, "Finish and burnish gold." "Crown is now ready to be set."

In the article copied from the *Dental Brief* and published in the February DENTAL SUMMARY, page 167, it states that "A diploma from a recognized dental college will permit one to practice dentistry in North Carolina without taking the State Board examination." This is an error.

All who wish to practice dentistry in this State in a legitimate manner must take the State Board Examination.

A correct statement relative to the law regulating the practice of dentistry in North Carolina will be found in February, 1905, issue, *Items of Interest*.

Utah, also in the above list, requires examination by the State Dental Board.

Yours very truly,

D. N. HICKS, Mt. Airy, N. C.





CORRESPONDENCE

INTERCHANGE OF STATE CERTIFICATES.

Editor The Dental Summary:

In looking over the year's issue of THE SUMMARY for 1904, I came across a paper in the June number entitled, "A Suggestion Regarding Interchange of State Certificates." by Dr. H. G. Patterson, of Idaho. This question has caused quite a little comment and before it is adopted universally (which I hope will never take place) it should be given a great deal of thought and careful study by those interested in the up-building of our profession. I feel that the agitators of this movement do not realize the monumental mistake they are making. Doctor Patterson, in his article, says: "Now if *A* is qualified to practice dentistry in that State, he certainly is competent to practice dentistry in any State in this Union." This is undoubtedly true. But do all State Boards ascertain if he is qualified? I say most emphatically, No.

I can give you the name of at least one State, whose Board consists of five members, not one of whom has taken the course prescribed for in the "National Code," and whose president admitted on his oath, before a trial by jury, that he had attended a ten-day course in the dental college. This Board has, according to its own statement, licensed a man to practice dentistry "because they pitied the poor devil," but incidentally because his practice was in an out-of-the-way district, not interfering with any member of said Board. At the same time this same Board "turned down" two thoroughly competent, intelligent gentlemen, both of whom were graduates of reputable colleges, both holding licenses in other States, one holding licenses in Indiana, California, Ohio, Michigan and Illinois, and the other holding license

in Wisconsin, having practiced in Milwaukee twenty years and a graduate of the University of Pennsylvania.

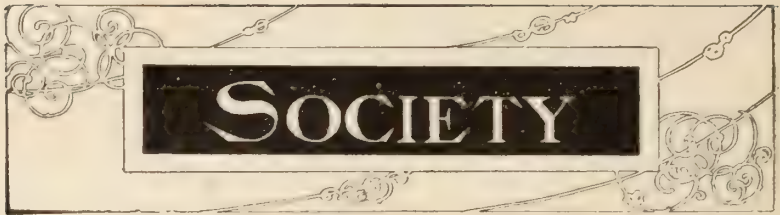
This latter gentleman, after having failed twice before said Board, appealed to the Governor, showing credentials undisputable, after which he obtained his certificate. The other gentleman, who holds five licenses from the States mentioned, after failing twice, submitted to a fine of \$100.00 and costs for "practicing without a license." Is this right? Would you be willing, after having found a candidate absolutely unqualified, unfit for the practice of dentistry, to return to you with a certificate for interchange from some other State? Are you willing to assist the man who cannot hold his practice in any community to remove to a new place, wherever convenient?

We have State Boards, consisting of reliable, intelligent men, known for their sterling qualities and known ability, who are fair and just, true to the trust imposed upon them. We also have State Boards consisting of men whose individual work stands as a disgrace to our profession, who will stoop to an agreement to pass A through, although he does not deserve it, if he in turn will "pluck" B because B intends locating in his territory. I am firm in the belief that when only fair, intelligent men are appointed to the position of members of the State Dental Boards, the dread we all feel in presenting ourselves before that august body, will disappear and we will be willing to assist in the legitimate maintenance of that Board and proud to show our merits by appearing before that Board, paying our fee, and pass a good practical "bunch" of questions.

ALBERT E. WEAVER, D. D. S.

Boise, Idaho.





SEVENTH DISTRICT DENTAL SOCIETY.

The annual meeting will be held in chamber of commerce rooms, Rochester, N. Y., March 28th and 29th.

ODONTOLOGICAL SOCIETY OF WESTERN PENNSYLVANIA.

The next meeting of this Society will be held in Pittsburg, March 14th and 15th, 1905.

SOUTHWESTERN MICHIGAN DENTAL SOCIETY.

The next meeting of this Society will be held in Kalamazoo, April 11 and 12, 1905. An interesting program has been arranged.

C. W. JOHNSON, *Secretary*.

MISSISSIPPI DENTAL ASSOCIATION.

The next meeting of this Society will be held in Jackson, Miss., April 18, 19 and 20, 1905. Dentists cordially invited.

E. W. BINGHAM, *Secretary*.

THE NEBRASKA STATE DENTAL SOCIETY.

The Nebraska State Dental Society will hold its next meeting in Lincoln, Nebraska, May 16, 17, 18, 1905.

The profession is cordially invited to attend.

York, Neb.

H. R. HATFIELD, *Corresponding Secretary*.

IOWA STATE DENTAL SOCIETY.

Will you kindly announce in your Journal the forty-third annual meeting of the Iowa State Dental Society which will be held in Des Moines, May 2, 3 and 4, 1905.

A program of clinics and papers of exceptional interest is under preparation. A cordial invitation is extended to the dental profession to attend.

C. W. BRUNER, *Secretary*.

NEW YORK STATE DENTAL SOCIETY.

The annual meeting of the Dental Society of the State of New York will be held at Albany, May 12-13, 1905. Papers will be read by Drs. E. T. Darby, Philadelphia; S. G. Perry, New York; J. P. Buckley, W. T. Reeves and A. H. Peck, of Chicago. The clinic committee, of which Dr. F. W. Proseus, Rochester, is chairman, is hard at work arranging an interesting program. A large attendance is expected.

New York.

W. C. DEANE, *Secretary*.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The annual meeting of the National Association of Dental Examiners will be held at Buffalo, commencing at 10 a. m., July 24, 1905, and continuing until adjournment. The hotel and assembly rooms for holding sessions will be announced later. Arrangements for members in the east have already been made with the Lackawanna Railroad for reduced excursion rates.

Newark, N. J.

CHAS. A. MEEKER, *Secretary*.

CONNECTICUT STATE DENTAL ASSOCIATION.

The forty-first annual convention of the Connecticut State Dental Association will be held at New Haven, Conn., April 18 and 19, 1905.

Bridgeport, Conn.

F. HINDSLEY, *Secretary*.

KENTUCKY STATE DENTAL ASSOCIATION.

The next annual meeting of the Kentucky State Dental Association will convene at Lexington, Ky., May 15, and 16, 1905. We anticipate a most pleasant as well as profitable meeting, and a cordial invitation is extended to the profession.

Masonic Bldg., Louisville, Ky.

W. M. RANDALL, *Secretary*.

AFTERMATH

PERSONAL AND MISCELLANY.

Dr. W. S. Whisler, of Calumet, Mich., who has been suffering with appendicitis, has resumed his practice.

Marriage.—Doctor Niven, of Sauk Rapids, Minn., to Miss Maude Chamberlain, of Minneapolis, Minn., January 15th.

Dr. J. F. Hendricks, of Bowling Green, O., who was stricken with paralysis, is better, although his condition is considered serious.

Change of Location.—Dr. A. Spencer Bailey, of Menominee, Mich., has sold out his dental practice to Dr. Moreau, who has been practicing in Beatrice, Neb.

Died from Extraction of Abscessed Tooth.—James Hall, of Farmington, Pa., aged 17, died in the dental chair at Ohiopyle after having an abscessed tooth extracted.

Died from Shock of Tooth Extraction.—Geo. W. Wagner, of Frackville, Pa., died from shock following the extraction of two molars. He bled profusely and weakened steadily.

Lorain County (Ohio) Dental Society.—Officers elected for ensuing year are: Dr. C. S. Kelsey, president; Dr. B. A. Purcell, vice-president; Dr. J. S. Ewalt, secretary and treasurer.

Fined for Practicing Without a License.—Dr. P. W. Callahan, Manchester, Va., was fined \$50 for practicing dentistry without a license from the State Examining Board, January 21st.

Golden Anniversary Banquet was tendered by the dentists of New Orleans, La., to Dr. George J. Friedrichs, February 21, 1905. Dr. Friedrichs graduated in dentistry February 21, 1855.

Dentist Killed by Indians.—Dr. Robert C. Coy, of Chicago, was killed by the Yaqui Indians January 20th in the Province of Sonora, Mex., where he had gone to look after mining interests.

Fined for Practicing Without a License.—Dr. P. W. Callahan, of Manchester, Va., was fined \$50 by the mayor for practicing without a license. He has filed suit to mandamus the State Board.

Prohibit the Sale of Cocaine.—A bill has been passed in Raleigh, N. C., to regulate the sale of cocaine and morphine, not permitting it except upon regular prescription of practicing physician or dentist.

First Dental Clinic.—The first dental clinic to be held in the Northwest Territory was given by the members of the Territorial Dental Association in Calgary in January and was pronounced a great success.

Damages Awarded for Extracting Wrong Teeth. The Common Pleas Court of Philadelphia, Pa., rendered a verdict of \$50 in favor of Wm. Daly for two teeth extracted by mistake by Dr. Geo. Stevenson, a druggist.

Died in a Dental Chair.—Mrs. Josephine Willats, of Buffalo, age 50 years, was suddenly stricken with heart disease while waiting in the dental chair to have a tooth extracted. She died without regaining consciousness.

Dentist Meets With an Accident.—Dr. F. A. Goy, of Sidney, Ia., met with a serious accident, viz.: mistaking a bottle of ammonia for listerine. He did not discover the mistake until his mouth and throat were badly burned.

Reading (Pa.) Dental Society.—New officers are. President, Dr. Chas. E. Grim; vice-president, Dr. C. R. Scholl; secretary, Dr. G. S. Schlegel; treasurer, Dr. J. T. Bair. Executive committee, W. H. Scholl, O. J. Specker and E. W. Bohn.

Burglaries.—Dr. Fred N. Bingham, Des Moines, Iowa, \$300; Dr. J. B. Harmon, Des Moines, Iowa, loss not estimated. Dr. D. McKenzie, Brooklyn, N. Y., \$285. Dr. Wherritt, Joplin, Mo., \$12. Dr. J. B. Stevens, Elizabeth, N. J., gold crowns and scraps.

Died from Hemorrhage Following Tooth Extraction.—Harold Davis, of Scranton, Pa., age 4 years, bled to death after having a tooth extracted. He suffered from toothache and when the tooth was extracted, a hemorrhage followed that could not be stopped.

Seattle Dental Club.—At the regular meeting of the Seattle Dental Club, held at Washington, January 9th, the following officers were elected: President, Dr. E. S. Barnes; vice-president, Dr. F. W. Hergert; secretary, H. V. Luithlen; treasurer, Dr. C. B. Reynolds.

Southwestern Iowa Dental Association.—At the annual session of this Society the following officers were elected: President, A. A. Dan, of Burlington; vice-president, S. J. Monford, of Fairfield; secretary, George W. Slingluff, of Burlington; treasurer, J. T. Martin, of Muscatine.

Dental Office Destroyed by Fire.—Dr. H. C. McMullen's dental office at Cambridge, Ill., was totally destroyed by fire on the night of February 1st. The loss to the Doctor will approximate \$1,000. Doc-

tor McMullen had one of the neatest and best equipped dental offices in the State.

Dentist Awarded Damages.—A jury in the Circuit Court returned a verdict of \$125 in favor of Dr. Glenn D. Bookwalker, of Indianapolis, Ind., against the Benevolent Order of Colonials. He had been attacked by foot-pads and shot through the hand. The Colonials charged that he had engaged in a fight and refused payment.

Teeth Marks May Convict.—At the trial of Charles L. Tucker for the murder of Mabel Page, at Cambridge, Mass., a plaster cast of Tucker's teeth was introduced and the dentist by whom it was made testified that the cast fitted indentations in a knife sheath owned by the defendant and said by the prosecution to have been held in his teeth while he was stabbing his victim.

Resignation of Dental Examiner.—The District of Columbia Commissioners, January 10th, accepted the resignation of Dr. W. E. Dieffenderfer as a member of the Board of Dental Examiners and appointed Dr. Sheldon G. Davis to fill the vacancy. In accepting Doctor Dieffenderfer's resignation the Commissioners expressed their appreciation of the services rendered by him as a member of the Board.

Dental Law for Indian Territory.—A bill has been introduced in congress regarding the practice of dentistry or dental surgery, in the Indian Territory. The measure provides that no one be permitted to practice the dental profession in Indian Territory without a license from a board of dental examiners, which board is to be composed of dentists and appointed by the chief justice of Indian Territory of the Court of Appeals.

Deaths.—Dr. S. S. Johnson, Lexington, Ky., aged 60 years, January 30th. Dr. Eugene F. Jaques, Painesville, O., January 18th, Dr. Emory L. Brooks, Vinton, Ia., aged 44 years, January 18th; heart trouble. Dr. J. B. Wilcox, Manistee, Mich., January 17th; internal injuries caused by a kick from a horse. Dr. Ben A. McGee, Denver, Col., January 15th; heart trouble. Dr. Edward Lewis, Dover, Del., January 31st; aged 64 years.

A Remedy Not in The Pharmacopia.—A Paris dentist has been fined for using music while extracting teeth on the ground that such a specific is not contained in the pharmacopia. The dental surgeon thought he had discovered both a novel and ingenious way to lull the nervous patients into insensibility by the sweet strains of harmony, and the striking novelty drew crowds of customers, but often when the melodious anaesthetic failed the doctor resorted surreptitiously to laughing gas. The court severely reprimanded the modern Orpheus.

To Limit the Power of Dental Board.—State Senator Walker Henry, of Spokane, Wash., has introduced in the legislature an amendment to the dentistry law, resulting from the litigation between

the ethical and so called non-ethical or advertising dentists. Senator Henry explains that his bill provides a definite form of examination, requisite to secure a certificate, and provides for a new examination when applicant demands. The purpose is to provide a definite manner of securing a certificate without leaving the matter entirely in the discretion of the board of examiners.

Sue State Dental Board.—W. J. Sherburne and George H. Sherburne, two dentists of Pocatello, Iowa, brought suit in the district court for a writ of mandamus against the State Dental Board, to compel it to issue certificates to them. It is set forth in the complaint that the law provides for the issuance of dental certificates to any dentists who were practicing in the State before the passage of the act, but that the State Board has refused to issue certificates to the plaintiffs, notwithstanding they have filed affidavits that they were so practicing. An order citing the Board to answer was issued by Judge Stewart, returnable January 30th.

Wyoming Dental Bill.—Section 6 of House Bill No. 67, relating to the practice of dentistry in Wyoming, and creating a State Board of Dental Examiners, is stirring up considerable interest in that profession. Section 6 seems to confer almost arbitrary power in language not altogether specific on the State Board. It reads as follows: "Section 6. The State Board of Dental Examiners may refuse license to individuals guilty of unprofessional or dishonorable conduct, and may revoke licenses for like causes. Unprofessional conduct being any act not in accord with the code of ethics adopted by the National Association of Dental Faculties."

He Was Buncoed.—When Congressman John Sharp Williams visits New York he never fails to look in at a small kindling-wood shop presided over by an old negro who was formerly a retainer in the Williams family. On his latest call he found the old man unhappy. "What's the matter, Lafe?" asked Mr. Williams. "I'se just been done out o' some money, Marse John, and that's mattah 'nough," replied the negro. "Had a terrible misery in mah toof and went to a dentist and got hit pulled, and he chaged me a dollah, a whole dollah. Why, once down in Tenn'see I went to ole Doc. Tinker, and he pulled two toofs and broke mah jawbone, and only chaged me fifty cents. I'se been buncoed."

Dental Commission Report.—The annual report of the State Dental Commissioners of Connecticut for the year ended September 30, 1904, gives the rules for conducting dental examinations, the qualifications required in the applicants for licenses being declared to have undergone no changes during the year. Sixteen candidates were examined during the year, six receiving licenses, and ten failing to pass. The report covers the general work of the commission for the year and gives lists of the following: Registered and licensed dentists in Connecticut, officers of the various dental societies in Connecticut,

dental colleges recognized as reputable by the commissioners. A copy of the State dental law is also included in the report.

Report of Ohio State Examining Board. The Ohio Board of Dental Examiners has filed with the Governor its annual report for 1904 and we note that 218 certificates were issued during the year as follows: 175 to graduates of Ohio colleges (they being exempt from examination up to June, 1905, session of Board); 19 passing examinations; 17 under the exemption clause of law; 7 duplicate certificates. Six cases were prosecuted with every decision favorable to the Board. One certificate was demanded as having been fraudulently obtained some six years ago; this was surrendered and holder left State. The financial statement shows receipts, including balance January 1, 1904, of \$880.56, of \$3,325.56, with disbursements of \$2,251.23; leaving a balance in hands of treasurer, January 1, 1905, of \$1,074.33.

Free Dental Clinic to be Established in Rochester, N. Y.—Plans are being perfected by a committee of the Rochester Dental Society, to open a public clinic in one of the rooms in the house occupied for the work of the Public Health Association, South Washington street. Deserving persons who have not the means whereby they can obtain private care of the teeth, may upon application at the free clinic, receive the attention of experienced dentists without expense to themselves. Equipment for the clinic rooms, such as operating-chairs, forceps, drills, etc., will be furnished by manufacturing dentists and the clinic will be opened, it is expected, in about two weeks. The committee of the society, which has undertaken the preliminary work in arranging for the free treatment of poor persons, consists of F. W. Proseus, chairman, L. H. Gilbert, W. W. Smith and W. W. Belcher.

How the Editor Gets It.—If an editor makes a mistake, he has to apologize for it, but if a doctor makes one he buries it. If the editor makes one there is a lawsuit, swearing and the smell of sulphur, but if the doctor makes one there is a funeral, cut flowers and a smell of varnish. The doctor can use a word a yard long without knowing what it means, but if the editor uses it he has to spell it. If the doctor goes to see another man's wife he charges for the visit, but if the editor goes to see another man's wife he gets a charge of buck-shot. When a doctor gets drunk it's a case of "overcome by heat," and if he dies it is heart trouble. When an editor gets drunk it's a case of too much booze, and if he dies it's a case of delirium tremens. Any old medical college can make a doctor. You can't make an editor. He has to be born.—Factotum.

Ohio Board Secures Another Circuit Court Decision.—The Ohio Board of Dental Examiners some months ago prosecuted Ellsworth Glenn in the Franklin County Common Pleas Court for violating the law regulating the practice of dentistry, and the jury rendered a ver-

dict of guilty. A motion for a new trial was overruled and the case appealed to the Circuit Court, this Court on February 6th affirmed the finding of the lower Court. This is the second case that Ellsworth Glenn has carried to the Circuit Court and lost; the other was an appeal from Judge M. G. Evans, of Franklin County, who rendered an opinion sustaining the Board in its refusal to grant a certificate to said Glenn under the provisions of former law which was repealed on the passage of the present law. The Board is to be congratulated upon the fact that every decision rendered has been favorable to them.

Old-Time Dentistry.—A story was recently told of the elder Judge Peckham, father of the justice. In the early days of dentistry a hickory plug was put into the cavity to fill the space where a tooth ought to be. This plug had to be gently pounded into its desired position. The old judge was somewhat addicted to strong language, and when the dentist began his work the judge indulged in some classic comment. As the tapping of the plug continued, he threw all dignity to the four winds of heaven, and his language became decidedly "more forcible than elegant." When, however, he arose from the chair, after what seemed to him an interminable period of agony, he pulled out all the stops in his vocabulary for a grand climax. The impression on his listener seems to have been deep and lasting. As the judge passed out, the dentist grimly remarked to a waiting patient: "Wasn't it beautiful? It wasn't really necessary to pound half as long, but I did so enjoy his inflection that I almost pounded the hickory plug into splinters. Wonderful command of language the judge has!"—National Magazine.

New Dental Law for Oregon.—To put an end to the dissension which has rent the State Dental Association of Oregon for several years, Senator Wright has introduced a bill in the senate which takes away from the association the power to nominate persons from whom the Governor must select his appointees on the State Board of Dental Examiners. The powers vested in the directors of the association has led to quarrels and walkouts until the usefulness of the association has been seriously impaired by the internal disturbances. The last time the association made nominations the disagreements were so pronounced and the protests were so strong that Governor Chamberlain ignored the nominations and appointed a man of his own choosing. Senator Wright's bill, Senate Bill No. 167, provides that the Governor shall make appointments after the expiration of the terms of the present incumbents. It also requires the State Board of Examiners shall grant to any person a certificate of admission to practice dentistry upon such person showing by affidavit that he has been in the actual practice of dentistry in this state for five years prior to January 1, 1905. The last section of Wright's bill is rather remarkable, for the reason that it seems to prohibit advertising or using the letters D. D. S., whether one has been admitted to practice dentistry or not. The section reads: "Any one advertising to

practice dentistry in newspaper, circular or otherwise, or shall append the letters 'D. D. S.' to his or her name, shall be prima facie evidence that such person is guilty of violating the provisions of this act."

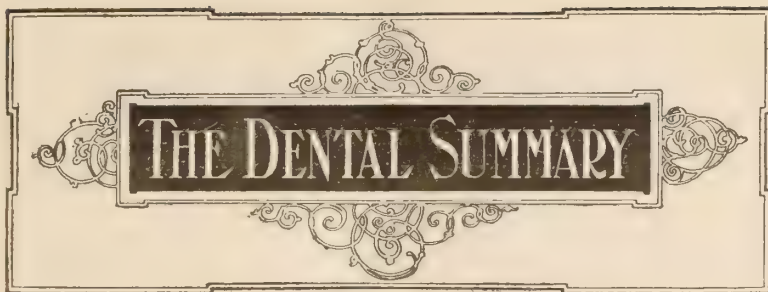
Minnesota Dental Board and the University of Minnesota Dental School.—One of the features of the Board of Control report, issued January 17th, is an implied criticism of the condition existing between the State Board of Dental Examiners and the University of Minnesota Dental School. According to the report, the school must maintain its membership in the National Association of Dental Faculties or its graduates will not be examined and granted licenses to practice in Minnesota. The Board asks rather pointedly why a State Board should require a Minnesota school to go to some outside organization for a certificate of character. Inquiry at the dental school discloses the fact that the school would really not be recognized as reputable by the State Examiners without membership in the National Association of Dental Faculties, and that its graduates would be refused examinations and licenses. Furthermore, the members of the dental faculty are wholly satisfied with this situation. They admit that it would be possible for the legislature to force the State Examiners to issue licenses regardless of the standing of the school, and even to make the school's diploma sufficient for a license without examination. Without membership in the National Association of Dental Faculties, however, a license so issued would not be recognized outside of the State, and the usefulness of the institution would be seriously impaired. The National Association of Dental Faculties is generally recognized in the various States as the only arbiter of the professional standing of schools.—*Minneapolis Journal*.

Recent Patents of Interest to Dentists.—

- 778,650—Dental tool, Emil Forquignon, New York, N. Y.
- 777,821—Dental separator, Robert Walker, New York, N. Y.
- 779,496—Artificial tooth, Robert E. Payne, New York, N. Y.
- 778,955—Dental tool holder, Richard M. Dunlevy, Bellevue, Pa.
- 778,981—Dental mouth-mirror, Alfred Littauer, Asbury Park, N. J.
- 778,567—Grinder for tooth-crowns, Marcus A. Coykendall, Grand Rapids, Mich.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.





A JOURNAL OF PRACTICAL DENTISTRY

Vol. XXV

APRIL, 1905

No. 4

L. P. BETHEL, M. D., D. D. S.

EDITOR

PUBLISHED BY
THE RANSOM & RANDOLPH CO.
TOLEDO, OHIO

ENTERED AT POSTOFFICE AT TOLEDO AS SECOND-CLASS MATTER



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To Correspondents

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Subscriptions and advertisements, send to the publishers,

The Ransom & Randolph Co., Toledo, Ohio

REGULAR CONTRIBUTIONS

A PRACTICAL CROWN OUTFIT AND SWAGING DEVICE.

BY C. S. BIGELOW, TOLEDO, OHIO.

WHILE primarily the outfit described herewith is for easily and rapidly swaging seamless gold crowns, its uses are by no means limited to this class of work. It can be used for all manner of swaging pertaining to crown and bridge-work. The method is simple and efficient for swaging backings and tipping facings, duplicating natural tooth cusps, making various kinds of bridges, etc.

The outfit is shown assembled as a crown outfit on page 263, and assembled as a swaging device on page 264 and consists of six parts.

1. A Molding Ring, R, (see page 263) in which the metal counter-die is made and in which the swaging of the crown is done.

2. A Steel Sleeve, S, (see page 263) which confines the Swaging Material, and in which the Plunger works.

3. A Plunger, P, (see page 263) which works in the Sleeve and transmits the power from the mallet, through the Swaging Material, to the shell, thereby contouring it to shape in the counter-die.

4. A Model Cup, which confines the moldine in which the model is mounted while preparing the counter-die. It thus forms a base for the model.

5. A Cusp Swaging Block, S B, (see page 264) which has nothing to do with the making of seamless crowns, but which has a wide range of usefulness in swaging other small pieces. Some of its uses will be described.

6. A Metal Arch which fits the slots in Molding Ring and partially divides the metal.

The Molding Ring, R, is a section of a cylinder, $1\frac{1}{4}$ inches across. It is pierced from top to bottom by a tapering cylindrical hole into which the fusible metal for the counter-die is poured. Opposite sides of this cylindrical hole are traversed by two vertical slots. Into these slots is fitted the Metal Arch which facilitates the splitting of the counter-die.

The upper surface of this Ring is grooved, forming a seat into which the lower end of the Sleeve fits. The joint thus

made compels the Swaging Material to exert all its force against the shell. The Model Cup also fits into this seat when the Molding Ring is inverted during the operation of making the counter-die.

The Steel Sleeve, S, is a cylinder, 2 inches in length. It just fits into the circular seat on the upper surface of the Molding Ring. The opening in the Sleeve is of the same diameter as the opening in the upper surface of the Molding Ring.

In this Sleeve is placed the Swaging Material, SM, (see page 263) to be used in swaging the shell into the counter-die. The Plunger is then placed in the sleeve above the Swaging Material, and the swaging is accomplished by a few blows of a mallet.

The Plunger, P, is a cylindrical steel rod, $2\frac{3}{4}$ inches long, and of a diameter to work easily in the Sleeve. It is slightly concave on the lower end. This concavity serves to force the Swaging Material toward the center of the Sleeve, and keeps it over the opening in the counter-die. The shape of the upper end of the Plunger is such as to insure that the force of the mallet will be delivered over the same opening.

The Model Cup is a flat steel ring, $1\frac{3}{8}$ inches in diameter, $\frac{3}{4}$ inch deep, and closed at the lower end. The opening in the center is of the same diameter as that in the upper surface of the Molding Ring. This cup forms, with the aid of some moldine, a base for the model from which the counter-die is made. The cup is filled with moldine, the model is mounted in the center, and the Molding Ring is inverted over all. The inner rim of the Model Cup just fits into the seat on the upper surface of the Molding Ring, and the joint made when the ring is inverted confines the fusible metal to the desired area.

The above parts constitute The Seamless Crown Outfit, but the range of usefulness of this outfit has been greatly widened by the addition of a fifth part, known as The Cusp Swaging Block. This Block and some of its manifold uses in crown and bridge-work will be described under the heading, "The Swaging Device and Its Uses."

All the above-mentioned parts are made of good quality steel, dressed to a smooth surface and blued. They are durably constructed and should last a lifetime.

Since many of the operations of making seamless crowns are included in the field of usefulness of this outfit, a short outline of the method of making such crowns will be presented,

and the use of each part of the outfit will be described in connection with the operation for which it is intended. These operations may be classed under the heads of "Obtaining the Model," "Making the Counter-die," and "Swaging the Crown."

The making of seamless crowns differs from the making of soldered crowns in that before the crown can be made it is necessary to obtain a model which produces in every detail of dimension and form the outside of the seamless crown as it is to be. From this model a counter-die is made, and into the counter-die a gold shell is swaged, forming the crown. The first important step is

OBTAINING THE MODEL.

Prepare the root as for a band crown. Secure from your dealer some seamless copper bands. These are made in sizes to correspond in circumference with gold shells. Festoon one to fit the gum and carry it as far under the free margin of the gum as the crown is to go. Trim the occlusal end of the band so that it is a little less in width than for a soldered crown. Contour as desired toward adjoining teeth.

The next step may be performed in either of two ways. The shorter way is to place the band in position on the tooth, fill it with quick-setting plaster or modeling-compound and have the patient bite into it. The band may then be re-



Figure No. 1.
The model with band
in place.



Fig No. 2.
Mounted impression and bite.

moved and the cervical end filled with plaster, using enough to form a root by which to handle the crown. The cusps and contact-points may then be carved as indicated by the markings on the plaster, and when all has been done the model will be ready.

The other way

of securing the model is to place the band in position on the tooth, take an impression and bite, and pour both, mounting them in an articulator. Shellac and oil the teeth which occlude



Fig. No. 3.
Carved cusp and contoured model.

with the band, fill band with soft plaster or modeling-compound and close the opposing teeth into it. Separate and carve cusps and contour as desired. Now cut away adjoining teeth, leaving a root on the model; remove all plaster from sides of band, and the model is secured.

When enough of the tooth to be crowned remains to permit easy restoration to the original form, a somewhat different plan will be found useful.

Either restore the tooth in the mouth with temporary stopping and then take a plaster impression, or take an impression before restoring and build up the model to its original form with plaster or modeling-compound. Take a wire measurement of the tooth at the gum margin. Cut the wire and remove it from the tooth. Trim the model at the gum-line until the wire measure just fits it. The model thus secured should be a reproduction of the tooth in its perfect condition, so that the finished crown will occupy the same space in the mouth, and come in contact with adjoining teeth in the same manner.

By whatever plan the model is secured it should be thoroughly dried to prevent the formation of bubbles in the metal counter-die.

Plaster casts or good forms of natural teeth can be saved and used over and over again as forms from which to obtain the counter-die. Where a shorter course is desired than that of preparing a special form for each case, a set of rubber tooth forms containing a good assortment may be used to advantage. When this is done, use a form the size and shape of the crown you wish produced.

MAKING THE COUNTER-DIE.

Fill the opening in the Model Cup with moldine and mount the model in the center by thrusting the root into the moldine.

With a warm spatula adapt the moldine so that it just touches the cervical end of the band all around. Place the Metal Arch in the vertical slots on the sides of the Molding Ring. Invert the Molding Ring over the model in such way that the arch crosses the widest part of the model.

POURING THE FUSIBLE METAL.

This operation, apparently very simple, plays quite an important part in securing an accurate counter-die.

If the metal be poured too rapidly the moisture yet in the model may form steam, causing bubbles which will destroy the accuracy of outline. If the model has been well dried and the metal is poured slowly, bubbles are not likely to form.

An excellent plan is to pour a portion of the metal, wait a few seconds and pour more, and so on until the ring

is filled, though metal should not be poured so slowly as to cause lack of union between the pourings.

The fusible metal which is supplied with this outfit is especially recommended for making counter-dies, since it fuses

at a very low temperature and pours very sharp. If not overheated it can be safely poured over a modeling-compound form, first coating the surface of the compound with soapstone or talcum to prevent the sticking of the metal to it.

When the fusible metal has cooled suffi-



Fig. No. 4.
Model Cup with model in place.



Fig. No. 5.
Pouring counter-die.
Dotted lines show Model Cup, Arch
and model in position.

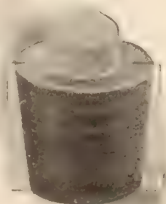


Fig. No. 6.
Counter-die before
splitting.

ciently, a few blows on the smaller end will drive the counter-die from the Ring. A chisel, a wedge-shaped instrument, or blade of a knife should now be inserted alongside the Metal



Fig. No. 7.
Split counter-die, showing Arch and model.

Arch, when, with the tap of a hammer, the counter-die will be split and the model removed.

The counter-die may be obtained by dipping instead of pouring. To do this, place Arch in Molding Ring. Set Molding Ring with larger

opening up, nearly fill with fusible metal and dip model into molten metal. When cool, remove counter-die, split, remove model and proceed as before. This method diminishes the possibilities of forming air-bubbles. When this method is used the Molding Ring should be slightly warm to prevent its chilling the metal too soon.

SWAGING THE CROWN.

Oil the counter-die and select a gold shell of proper circumference and length to fit the counter-die without buckling when the two parts are pressed together. After annealing the shell, place it in the counter-die, then drop the counter-die with shell in position into the Molding Ring and tap firmly to place. With a soft stick and mallet start the shell well to place in the counter-die. It is well to begin the swaging this way, especially when the cusps are deep. After the shell has been well started to place it must be removed and annealed again to prevent tearing over the cusps. When annealed, fill the shell with warmed Swaging Material and place more of this warmed Material in the Sleeve. The Molding Ring should now be set on a firm base, larger opening up, the Sleeve containing the Swaging Material and Plunger should be put in position, and with a few blows of a mallet the crown is swaged.



Fig. No. 8.
Gold shell.

The use of a heavy rawhide or wooden mallet is advised, since it delivers a dead blow which has no rebound, and it will not batter the plunger.

It is sometimes desired to obtain a crown which will fit over a model instead of merely reproducing it. To do this it is necessary to obtain a metal die of the model. Obtain a plaster model. Fill Model Cup with moldine, powder model to prevent its sticking, and press model into moldine so that, when withdrawn, it will leave a sharp impression of the model. Invert Molding Ring over Model Cup and pour full of fusible metal. The result will be a metal die of the tooth. Turn Molding Ring right side up, select proper shell, anneal, place over die, put sleeve, Swaging Material (after warming) and Plunger in place, and swage crown to fit. This method will be found useful in swaging open-face crowns and bands. It obtains a perfect adaptation of the borders of the crown or band to the tooth.

The gold shells required for use with this outfit are now perfectly made in large variety. They are sold at prices that make seamless crowns cheaper than soldered ones, since the seamless crown completed represents less cost for material than a similar crown of the soldered type.

The shells as supplied have a perfectly smooth exterior, and when swaged into a smooth counter-die, as described later, the crowns produced are so smooth that, after polishing with rouge or whiting, they are ready for the mouth.

The making of a gold seamless crown with The Practical Crown Outfit and Swaging Device precludes the necessity of filing out solder seams and polishing out file marks.

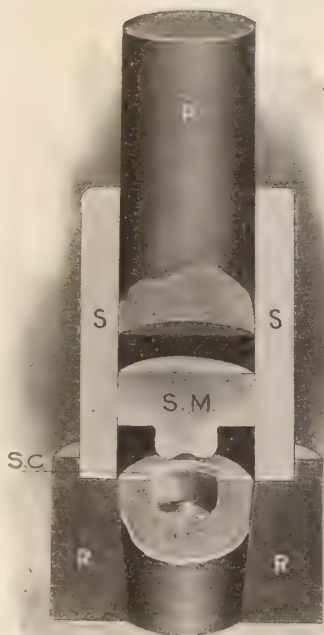


Fig. No. 9.
Crown Outfit, with all parts and partially swaged shell in position.

THE SWAGING DEVICE AND ITS USES.

The Swager which the Cusp Swaging Block makes, with the aid of the Sleeve and Plunger, has probably more uses in crown and bridge-work, and effects more economies of time and money than any other device known to the profession. It

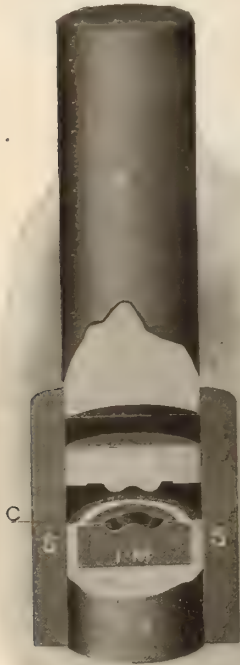


Fig. No. 10.
Swaging Device, with all parts,
including swaged cusp,
in position.

is a cylindrical steel rod of the same diameter as the Plunger, but shorter. Its lower end is flat to insure stability, while the upper end is deeply concave. This concavity is to be filled with Impression Material, I M, a preparation furnished with the outfit, and which softens with heat, but becomes very hard on cooling.

To operate the Swaging Block, the Impression Material is softened over a flame, and either pressed over the object of which an impression is desired, or the object is pressed into it. In a moment the Material will be sufficiently hard to be used as a counter-die, or it can be made hard immediately by chilling in water. Lay a piece of gold over the impression, set the Sleeve containing Swaging Material and Plunger over the block, and swage the gold into the impression.

SWAGING CUSPS.

By means of this Block, cusps may be swaged from any desired model. A carved plaster tooth, a tooth in the mouth, an artificial tooth, or a cusp from a die-plate may be exactly reproduced. Get a good impression of the cusp in the Impression Material. Cut a piece of gold to fit over it, with some to spare. Partly swage to place, remove, anneal, and trim gold to within $\frac{1}{16}$ inch of cusp. Replace and finish swaging.

Anything of which an impression can be obtained in the Impression Material can be reproduced by following the directions given.

GOLD DUMMIES FOR PLATE-WORK.

Select an artificial tooth of the desired size and shape and press it into the softened Impression Material, embedding as much of the surface as it is desired to reproduce. Remove, put a piece of gold in its place and swage. When finished, the gold tooth will be an exact duplicate of the porcelain tooth from which the impression was taken.

VULCANITE PIN TEETH AS DUMMIES IN BRIDGE-WORK.

This Swager makes possible the use of vulcanite pin teeth as dummies in bridge-work. Backings can be accurately swaged over the uneven backs of anterior vulcanite teeth and used instead of facings in bridge-work. Vulcanite bicuspid and molars (teeth with porcelain cusps) can be backed, allowing the backing to extend over the lingual and approximal surfaces of teeth, and used in bridge-work avoiding the necessity of swaging gold cusps and adapting them to facings. Cut the heads off the pins and embed the tooth in



Fig. No. 11.

Vulcanite molar imbedded in Impression Material.

the softened Material of the Cusp Swaging Block, cusp side down, in such manner that the back of the tooth will be horizontal, leaving part of the lingual and approximal surfaces or as much of the tooth exposed as is to be covered by the backing. Anneal backing and adapt to tooth with finger. Punch holes for pins, put backing in place, put Sleeve containing Swaging Material and Plunger over the Cusp Swaging Block and tooth, and with a few blows of the mallet, swage backing to fit the tooth.

By burnishing on the sides and face the backing will be formed into a box which will perfectly fit the tooth. The tooth thus



Fig. No. 12.

The backed vulcanite molar.

backed may be used in any part of a bridge, and offers the following advantages over the older method of backing facings and swaging gold cusps:

1. The greater thickness of the tooth at the point where the pins are inserted makes a stronger tooth.

2. The backing being swaged is so perfectly adapted to the tooth that it practically insures the exclusion of borax and solder during soldering, thereby avoiding a common source of cracked facings. It also insures the exclusion of food during wear; this means a more sanitary bridge and one less likely to acquire a bad odor.

3. Owing to the manner in which the backing supports it, the vulcanite tooth is less likely to break in use (under stress) than is the facing. The vulcanite tooth sits in a box which affords support directly opposed to the stress. The facing is supported only by the pins. This support is at right angles to the line of stress, and its strength is only that of the porcelain which is baked onto the pins.

4. Ease of repair. When pinless teeth are used for dummies, as described later, the repairing of a broken tooth is very simple and does not necessitate the removal of the bridge.

5. Beauty. A bridge in which vulcanite teeth have been used for dummies exposes very little gold to view. When vulcanite teeth are used for piers, such a bridge manifests all the beauties of a porcelain bridge without its cost, its weaknesses, or its difficulties of construction.

6. Economy. A very considerable saving in time, materials and labor, which the use of vulcanite molars and bicuspsids in bridge-work makes possible, is worthy of consideration.

VULCANITE TEETH AS PIERS IN BRIDGE-WORK.

Where the abutment teeth can be cut off, vulcanite teeth can be used as abutments. Grind the abutment root low on the labial side and as high as the case permits on the lingual. The height of the sides can be determined by trying the vulcanite tooth in place. Make a band to fit the root and solder on a flat top which shall follow the slope of the root, or swage a cap for root as shown in Fig. 13. Grind the vulcanite tooth so that when backed up and fitted in it will occlude. Back up, wax in position, invest and solder. If the abutment be made

first, using solder of a higher karat than will be used for the final soldering, the making of the bridge will be much simplified, and the abutments thus made will be more artistic than a gold crown and fully as durable.



Fig. No. 13.
Pinless vulcanite
tooth used in a crown
as an abutment.

PINLESS TEETH AS DUMMIES.

Pinless teeth may be used as dummies in much the same manner as pin teeth. Embed tooth in softened Material and swage backing in same manner. Carry backing as far on the lingual side as convenient, and far enough on the labial side to make a firm support for the tooth. On the proximal surfaces carry it above the small holes. Burnish carefully to place. The gold backing will swage into the hole in the center of the pinless tooth and act as an additional support; or a hole can be punched through the backing, opposite the hole in the tooth, and a platinum or platinoid pin inserted through the hole in the backing into the tooth and cut off level with the top of the tooth. In case a pin is used, hold it to place in the backing with sticky wax until it is invested with the rest of the case and soldered.

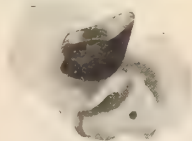


Fig. No. 14.
Pinless molar and
backing.

When the case is waxed-up, ready to invest, remove the teeth and invest only the backings. After the case is soldered, cement the teeth to place.

By following the above plan the teeth will not be subjected to the heat of soldering, and the combined support of the pin

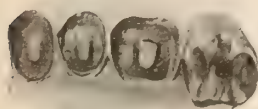


Fig. No. 15.
Bridge ready to have pinless teeth
cemented to place.



Fig. No. 16.
Bridge with pinless teeth cemented
to place.

and the box into which the tooth snugly fits, makes an extremely substantial case. This plan also does away with the pre-

dominance of gold which usually characterizes bridge-work, as both faces and cusps of the teeth are of porcelain.

This makes the most practical detachable-tooth bridge. When a tooth of this sort is broken it is necessary only to procure a duplicate tooth, grind to place, and set in cement. It is not necessary to remove the bridge.

DAVIS AND JUSTI CROWNS AS DUMMIES IN BRIDGE-WORK.

These crowns may be used in much the same manner as described for vulcanite pinless teeth. Embed crown, gingival end up, deep in Impression Material and swage a cap over end of crown, letting it extend slightly onto the labial surface, and as well up onto the lingual as seems best. Opposite the hole in the crown, punch a hole in the backing, into which the pin furnished with the crown will fit. Cut pin off level with gum-side of backing, and hold in place with sticky wax until the case is invested and soldered; set crown with cement after bridge is finished. This method will be of particular advantage in anterior bridges.



Fig. No. 17.
Imbedded Crown.



Fig. No. 18.
Swaged cap in place.



Fig. No. 19.
Swaged cap removed.

The combined support of pin and cap assists in making a very strong bridge.

In case of a broken tooth of this kind it can be replaced without removing bridge from mouth.

MAKING RICHMOND BANDS.

This Swager makes it easy to obtain perfect fitting bands for Richmond crowns. Obtain a plaster model of the root after

it is prepared for crowning. Fill Model Cup with moldine and press model into moldine in such manner as to leave an accurate and sharp impression when the model is withdrawn, as shown in Fig. 20. Invert Molding Ring over this impression, and pour the ring full of fusible metal.

This will give a metal model of the root.

Turn Molding Ring right side up, put a piece of gold plate over model, place Sleeve, warmed Swaging Material, and Plunger in position,

and swage the gold to fit. It will be well to anneal the gold several times during this swaging. Bands thus swaged will be excellent fits.

BANDING PORCELAIN CROWNS.

In some cases it is desirable to band a porcelain crown. By means of this Swager it may be readily done. Swage a cap to fit the root as described in "Swaging Richmond Bands."

Swage a cap for the gingival end of the crown as described in

"Davis and Justi Crowns in Bridge-work." Put the root-cap over the root and the crown-cap over the end of crown. Put crown to place, forcing pin through both caps. Fasten the caps to each other with wax while they are in the mouth. Remove from the mouth, take the crown away, invest and solder. Finish by setting crowns and bands with cement. This method will secure



Fig. No. 22.
Swaged cap
with pin in
position.

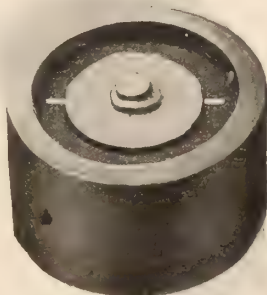


Fig. No. 21.
Showing metal model of root.



Fig. No. 23.
A bridge pier for
crowns.

a perfect joint, a thing often difficult to obtain. Crowns thus banded make excellent bridge-piers.

BACKING FACINGS.

This Swager affords the method par excellence for backing facings. Embed facing in softened Swaging Material, making sure that the Swaging Material supports it at every point not to be covered with gold. Anneal backing, punch holes for pins, slip backing over pins, put Sleeve, etc., over Cusp Swaging Block and facing, and with a few blows on the Plunger, swage the backing to an exact fit. There is no danger of breaking the facing provided these directions are followed.

TIPPING FACINGS.

Before grinding facings, moisten and press incisal edge into softened Swaging Material. Carefully swage gold into the impression thus made and fill with 22-k. solder. Grind to desired size, making sure the soldered surface is flat. Grind tip of facing and back up as usual. See that backing over tip is flat. Moisten with borax, set the swaged and soldered tip in place, and solder. If properly done this will give a tip the same size and shape as the tip of the facing before grinding.

THE BEST METHODS IN CROWN AND BRIDGE-WORK FROM A PRACTICAL EXPERIENCE.*

BY DR. EDWARD EGGLESTON, RICHMOND, VIRGINIA.

During the last thirteen years it has fallen to my lot to call attention to most of the points contained in this discourse. but it seems fitting now to review some of them. We are too prone to fail to comprehend even the most practical points in these set addresses. If you observe any lack of co-ordination in the several points treated, I ask suspension of criticism on the plea that this has been written under the most adverse circumstances, due to the impossibility to give the time necessary for accurate work.

Coming, then, to the discussion of practical crown and bridge-work, I will refer to some of the methods in common use.

*Read before the Virginia State Dental Society, August, 1904.

First, I wish to set my disapproval upon all forms and modifications of banded crowns, except those cases in which we are justifiable in the application of full gold caps. There is no occasion, for instance, of using such a thing as what is commonly known as the Richmond crown. If you please, a Richmond crown minus the band will do good service, and for many cases demanding crowning some modification of a bandless Richmond can be well adapted.

What shall we consider in making a plan when a case presents? Three paramount considerations present themselves: Firstly, usefulness; Secondly, esthetic appearance; and Thirdly, durability without irritation to the surrounding tissues.

Under the term, usefulness, we must consider the power to masticate or excise the food, the accuracy with which we copy nature, which involves the size and form of the crown, the precision with which the contour of its approximal surfaces are made and adjusted to the approximal surfaces of two other teeth, as well as its natural occlusion with the two opposing teeth. Usefulness also calls for smooth and rough surfaces, as the case in hand may indicate. It is a common fault in crown and bridge-work to have its masticating or cutting surface too smooth. I would call your especial attention to the fact that in most instances the occluding surfaces should be more or less rough, in order to better hold and cut the food. Of course all other exposed surfaces of the crown cannot be too highly polished. In many cases it adds greatly to the usefulness of this work to make a regular cross-cut or file-like surface on all available masticating space. If you wish to demonstrate how highly the user appreciates the advantage of this, select a case requiring a bridge on either side and roughen one, leaving the other smooth. This roughening does not materially mar the appearance, for the reason that its location is such that it does not appear.

Probably you observe that in naming the three primordial considerations in crown and bridge-work, I have placed them in the following order: usefulness, esthetic appearance, durability; thus indicating my judgment as to their relative importance. I have purposely placed the esthetic before durability, because it is desirable to discriminate conservatively and to a limited extent in favor of the former. I once heard Dr. E. P. Brown, of New York City, say, when catechised regarding the durability of a

certain kind of work which he held in great favor at that time, that if it did not give trouble and need repairs, his wife and children would starve to death. Of course the Doctor did not mean literally what he said, but what he did mean, and what I heartily endorse, is, that in the highest class of dental work, we should consider first the esthetic before the extreme degree of strength.

The time is ripe for that high degree of art which entirely conceals itself by approximating nature. I will not consider the use of all-gold caps on the six anterior teeth, for the reason that I consider it gross malpractice, but I am often displeased by the disfigurement of gold caps on the bicuspid; especially is this intolerable in the mouths of ladies, and on the first bicuspid. In all such cases I wish to make an earnest plea for the concealment of gold, the perfect shading and shaping of the porcelain crowns and facings, whether the case is simple crowning or bridging spaces. I desire to impress upon you as forcibly as I can the justification of compromising with strength to a reasonable degree, in order to secure that great beauty and attractiveness, which a perfect set of teeth lends to any individual. On the same basis I object to the display of gold in filling, but this is not within the province of my subject.

The way to obtain the most favorable results in any given case is to make the most careful and searching examination of everything which has any bearing on the case, taking such accurate mental impressions as to be able to call it before you at will in the absence of the patient, then dismiss the case, and during the interim between this examination and the next appointment, go over and over every proposition to be dealt with, and every detail of the work, to get the result which you have pictured in your mind. I contend that the thoroughly competent dentist ought to be able to execute mechanically and otherwise any plan which he is capable of formulating mentally.

The banding of teeth in such a manner as what is known as the Richmond crown calls for, is highly objectionable for a number of reasons; the disfigurement of the mouth ought, in itself, to exclude it, but furthermore it is a source of constant irritation, and if a crown constructed on this principle is used for many years the tooth will become loose, especially if the individual is advancing in years, when there is great danger of

natural senile irritation bringing about this dreaded condition. There are both positive and negative reasons for objecting to this method of crowning.

One of these is that it is not necessary for the strength of the operation. In all cases of crowning (whether a gold base or an all-porcelain is used), if the post in the canal is sufficiently long and properly adjusted, and the end of the crown is properly fitted to the root end, and the two securely cemented, there is no reasonable danger of failure from either loosening of the crown from the root, or of splitting the root.

I have observed one point of mechanical error in this work that seems to me should be obvious to all, and that is, making the root end concave when the mechanics involved demand convexity. The necessity of observing this rule is so plain to my mind that I would not refer to it, were it not for the fact that, as I have said, it so often comes to me with the root-end hollowed out.

Now, in consequence of what has been said in the foregoing pages, and in order to avoid the possibility of conveying to you the erroneous impression that I advocate the construction of work faulty in mechanical principle, and therefore deficient in strength, I will reaffirm that it is my unvarying purpose to construct this work with all the power of resistance to those influences which militate toward its final downfall that it is possible for me to incorporate, whether or not this great strength seems necessary; the only qualification being that I must have the beauty, and in order to conceal artifice, and get that pleasing effect, which in all nature we sum up and include under the term esthetic, I will conservatively dispense with so much of that superfluous strength as is necessary, though I appreciate the increased chance of some minor accident, such as the fracture of a facing. It was my desire to insert here the provision which I make for this emergency, with full details of the procedure in replacing the lost facing, but at the last moment time will not permit.

In reaching out then after the ideal in the science and art of restoration of impaired or lost dental organs, we should first of all endeavor to secure that perfect imitation of nature, which is the high mark of perfection.

It is not permissible here to enter into the various methods of constructing crown and bridge-work, but I may with pro-

priety refer to a few points of special interest. In those cases in which we are justified in the employment of gold-cap crowns, they should invariably be constructed on what I will call the Burgess plan, as follows: When the band is filed and cut exactly even with the top of the prepared tooth, which latter should present a perfect plane, a piece of gold plate with its center punched out should be soldered to the band, then trim the circumference nearly, but not quite down to the band, and after contouring its sides, as the case indicates, proceed to swage a cusp and attach it with a minute particle of solder at two opposite points. Try this on in the mouth, have the patient close the teeth into the soft plate and also grind sideways as in ordinary mastication, seeing that the occlusion is perfect, remove and fill in the cusps by melting in scraps of solder until it is nearly even with the punctured plate. You hear people talking about bridge-work wearing out and having to be repaired from this cause; they usually refer to the wearing through of these gold caps, and in most of these cases stamped caps or something similarly constructed is the cause. This wearing through is almost impossible, if the natural tooth is cut low, and the gold cap constructed after the manner I have outlined.

A favorite form of abutment with me is to place an iridio-platinum post in the enlarged pulp-chamber of any of the six anterior teeth, and then back up the tooth after the manner of backing a facing, trim this to the proper shape and flow solder over the surface, making the backing and the post continuous. This, as you see, is a concealed yet very strong form of abutment. There are many other forms of support, but they cannot now be mentioned.

Another matter which I consider of great importance, is to construct the body of the bridge separately from the abutments. The body of the bridge should be made from an impression, and articulation taken before the work on the abutments is begun. Then when the abutments have been placed in position, the last impression and articulation is taken from the final attachment of the body. The idea of this procedure, and its advantages must be self-evident to all. It so lessens the final contraction, as to insure the perfect filling of the completed work, even in the largest and most complicated cases. This method I would advise you to follow even in the suspension of a single tooth. It cannot justly be said that it materially multiplies the labor, because the

time consumed is more than compensated for in the final adjustment of the work. I have had some trouble from a slight change of shade in facings in passing through the fire, and so far have not been able to perfectly solve the problem. but my theory is (since it does not always appear) that some slight quantity of the flux works its way between the backing and the tooth. I have used all diligence to overcome this, but it still occasionally occurs. My main reliance in avoiding this is to coat the gold backings of my porcelains with a film of whiting, and to carefully burnish the edges of the backings. This change of shade is extremely slight, and cannot be noticed by the patient, still it should be obviated as far as possible.

Too little material in the completed work, and a lack of restoration in the forms of the teeth are other common defects in bridge-work, and there is really no excuse to be made for either. Some seem to think that it is not necessary to reproduce more than two-thirds of the width of the masticating surfaces of natural teeth in bridging, and that the inner surfaces of molars may without impropriety be left concave.

PORCELAIN INLAY FILLINGS.*

BY DR. B. BRIDGEFORTH, RICHMOND, VIRGINIA.

If, in presenting for your consideration, that branch of dental ceramics known as porcelain inlay work one person is converted to its use, I shall feel amply repaid for my labors.

In view of the fact that there seems to exist a wide-spread skepticism regarding the durability of this work, you will pardon me for going into a rather lengthy argument for its defense, before taking up the technic of the question.

In the outset, and without fear of contradiction by those who have had experience with this work, I make bold to assert that the average porcelain inlay filling is as durable as the average gold or amalgam filling. And if this be the case at present, we can reasonably look for greater things of it in the future. Imagine, if you please, the difficulties that were encountered, and the failures made, when gold had been used only four or five years. And

*Read before the Virginia State Dental Society, August, 1904.

are we not told by the older practitioner of to-day, that he can remember when amalgam was introduced, and before it had been given a thorough test it was relegated for a time to the charlatan? So I am persuaded, that man born of woman, is of few days and full of doubt.

A few reasons for believing that porcelain is as durable as the metal filling.

First—Have we not seen, time and again, these very porcelain fillings that were ground in, and could not possibly have been as perfectly done as the modern inlay filling of today? Have we not seen these fillings standing and in good condition twelve and fifteen years after they were inserted?

Second—Do we not see in our daily practice Logan and other porcelain crowns that have been standing for years, and with far more imperfect joints than the present inlay filling?

It seems to me altogether reasonable, that, with a frail, chalky tooth, or with any other tooth, so far as that is concerned, a film of cement in absolute contact with the tooth, microscopically speaking, and further protected by this inlay filling, is far more effective in preventing the invasion of micro-organisms and subsequent decay, than either gold or amalgam can possibly be.

But, I anticipate you in saying, that the joint is the weak point; there you have your bacteria and decay. Not so. This very thorough preparation of the margins of the cavity, together with the chemical action which the cement exerts, seem to render these margins immune.

ESTHETICS.

It is so obvious to everyone that porcelain and cement are the only fillings that approach the esthetic, that this question need not be considered here. It is as ridiculous as to say that a shiny, gold filling in a white tooth simulates art, as it would be to assert that an Othello, painted half white and half yellow, would represent the typical Moor.

TECHNIC.

Owing to the fact that each individual case presents some

special feature and should be treated as such, it is not sensible to lay down any fixed rules governing the preparation of a cavity.

However, a few cardinal principles can be observed.

First of all is a good deep seat for the filling; for if the cavity be very shallow, aside from the possibility of cracking the filling in setting, it will not be well retained, even though there be little or no stress upon it.

MARGINS.

After all decay is removed and the cavity is made sufficiently deep for retaining purposes, the margins should be looked to—and this is one of the most important parts of the operation. Great emphasis is usually placed upon the necessity of having these margins parallel.

This seems to me to be very desirable, if it can be done without too great sacrifice of tooth structure; but not absolutely essential to a good operation. The margins should be as thick as possible under existing condition, and should not be beveled externally. Beveled margins in a porcelain filling will give frail overhanging edges, a ragged joint and a well-defined line of cement showing through at this point. If, after the cavity is prepared, there exists undercuts, these places may be quickly filled in with temporary stopping which can easily be removed before setting the filling.

GETTING THE IMPRESSION.

The cavity having been prepared, the next step is getting an impression. The platinum is cut the proper size and shape, allowing considerable margin, thoroughly annealed and placed over cavity, with gentle but firm pressure, using a pellet of cotton or spunk, carrying it well to the bottom of the cavity. This should be done before burnishing over the margins, to prevent tearing in the center, although a reasonable hole will make no difference. If, in adapting the platinum to the interior of the cavity, an ordinary round-head burnisher is used and the platinum is not carried well up against the walls, internally, the result is a rounded back to the filling which will prevent its being well retained.

THE MATRIX

The matrix should be adapted to the interior of the cavity at every point before the first baking is done, as it cannot be done afterward. After the matrix is thoroughly adapted it should be gently teased from the cavity, and the first baking is made.

The body should only be carried to the biscuiting point in this baking, to prevent burning out the color in the subsequent bakings. All surplus platinum is now trimmed away and the matrix is replaced in the cavity for the final burnishing. With one hand, hold an instrument firmly in the center of the filling and adapt the matrix thoroughly to every part of the margin with the other hand. Remove the filling gently and make the final bakings. In doing this part of the work, it is not at all necessary to stare into the mouth of a glaring furnace, which is very injurious to the eyes, as a very little experience will teach one just how long to bake at a certain temperature, just as in vulcanizing—of course being careful to the second, as the color is very easily burned out.

After baking, the matrix should be stripped from the filling, taking great care not to injure the frail margins. This can best be done by stripping from the margins to the center. The filling is roughened on the cement surface by a thin disc-wheel, which is quicker and much more effective than hydro-fluoric acid which is sometimes used.

Cement is now mixed to the proper consistency and the filling is carried to its final resting place, being held firmly in position until the cement is hard. If it is an approximal filling, a ligature may be tied tightly around it at this time—a good point, for which I am indebted to my friend Doctor Hardy. I consider the process of setting the filling one of the most important parts of the operation. Place the rubber on, wipe out the cavity with alcohol, which disinfects it and at the same time dries the surface thoroughly. Mix the cement as thick as possible to allow the filling to be carried perfectly into position.

RECAPITULATION.

Deep cavity. Good margins. Thorough adaption of matrix to interior as well as margins of cavity. Care in not burning out colors. Care in stripping matrix. Proper consistency of

cement. Gentlemen, I say to those of you who do this work, that you will have to come to it, and the sooner you do it the better.

Please do not consider me an extremist on this subject, however, for there is certainly a limit to its usefulness. It is a thing we should deal cautiously with—just as in any other work. But there are places in which it can be used to great advantage and lucky is the fellow who has the common sense to know where these places are.

NOTE.

Having had no experience with the low-fusing bodies, this paper treats of the high-fusing inlay work. Nevertheless, I have endeavored to set forth certain cardinal principles which may be applied to either.

TECHNIC OF PORCELAIN WORK AND RESTORATION.*

BY DR. WILLIAM H. PEARSON, HAMPTON, VIRGINIA.

There has been so much written and said on the subject of porcelain work by men who are far more capable and who have had experience, that I feel much out of place trying to write anything on the subject. The ground has been thoroughly covered, but let us rehearse the characteristics of an ideal filling material.

I will not burden you with comparing all the filling materials, but will just compare gold and porcelain, and apply it especially to anterior teeth.

What are the requirements?

		GOLD.	PORCELAIN.
1st	Resistance to wear of mastication.	Very poor	Very good.
2nd	Resistance of action of oral fluids.	Excellent	Excellent.
3rd	Harmony of color.	Excellent	Best of all material.
4th.	Preventing decay—		
	(a) by excluding bacteria.	Yes.	Yes.
	(b) by precluding growth of bacteria that enter margins.	Very poor	Yes.
5th.	Non-conductivity of heat, etc.	Bad in its great conductivity	Excellent as a non-cond.
6th.	Manipulation easy to patient.	Most exhausting.	Very easy.

*Read before the Virginia State Dental Society, August, 1904.

THE DENTAL SUMMARY.

	GOLD.	PORCELAIN.
7th. Manipulation easy to operator.	Very difficult to mind and body	Taxes mind.
8th. Adhesion to cavity.	None.	Great.
9th. Undercuts unnecessary.	Very necessary	Not always necessary.

I think the most of you will acknowledge that porcelain comes nearer the requirements of an ideal filling material, yet it is very necessary to use much discretion in its use.

Do not misunderstand me to say porcelain is the best in all cases, but I do say where there is much display of gold, where cavity is in close proximity to pulp, where tooth structure is too frail to stand the manipulation of gold and where teeth are very sensitive to thermal changes, porcelain above all others is the filling material. It is absolutely necessary that our patient or I might say public should be educated to the point of co-operation between the patient and operator. Without this the best results cannot possibly be obtained, be it porcelain filling or any other operation.

In cavity preparation we have learned to regard certain rules as indisputable.

The different commercial men who introduce the material and give demonstrations so prepare their cavities that the matrix may be more easily inserted and their method most simple.

In order that our fillings should be permanent we must so prepare our cavities that they will be correct from a mechanical standpoint, and not depend entirely on the cement to hold the inlay in place.

For the labial surface of teeth we still hold to the old rule laid down that cavities have a flat base and straight walls with a plenty of depth.

Now in the approximal cavities or I might say in all cavities the base should be opposite the place force is applied.

To be a little more explicit let us take as an example an approximal cavity of a central. After all decay has been removed and frail margins of enamel trimmed, cut a seat at gingival margin at right angles to axes of tooth and then the other surfaces are cut perpendicular to seat at gingival margin without undercuts to cavity that matrix may be removed without change of shape.

Now proceed to burnish matrix to place for impression of cavity which should be a most careful proceeding as this is next

in importance, for without a good impression it is impossible to make a perfect fit.

The next step is to select color which I find a most difficult problem. If you take a facing and place between two natural teeth it may appear so perfect in color that it cannot be detected yet if you cut off corner of facing and insert on corner of natural tooth you will many times find your porcelain patch off color, which will look almost as bad as a gold contour.

Now you may ask, why this difference in color? It is because of a different underlying color of each tooth. The general effect of facing is good, but corner has a different underlying color. It is these colors we have to look for and so mix and bake the porcelain that they may be brought out.

Many times in examining teeth for selection of shade by your color guide you will notice a typical yellow tooth that you expect to fill with an inlay. If you will notice deep down in dentin you will sometimes find a decided blue near cutting edge. If that color is not brought out in your inlay you will find on inserting it quite a difference.

Those of you here who have ever worked porcelain I dare say have many times made inlays that you thought perfect and according to coloring when placed by teeth at first were, yet, when filling was placed in, much to your surprise the effect was entirely different from what you expected.

Often have I had that experience and had my work to do over, taking up many hours of patient's time and my own for which I could not charge.

Now as to kind of porcelain; many use a low-fusing and think that satisfactory, but I believe the high-fusing the only kind to use. Bodies that fuse above 1840° F.

The greatest advantage claimed for the low-fusing body is use of gold for matrix, but when you take into consideration the ease with which platinum can be handled after matrix is made more than counterbalances the advantages of gold. Platinum can be burnished in almost any cavity and will not change shape when teased from cavity as gold will.

The inlay can be made without the trouble of investing matrix as is necessary by use of gold.

I will now cite one of a few cases that has come under my observation in the past two years.

In October of 1902, one of the officers of the Fort while playing on an asphalt tennis court, fell and broke off right central incisor, barely missing pulp. He consulted me, anxious to know what could be done for it without losing balance of tooth structure to insert crown. On examination, found pulp alive without exposure, but tooth very sensitive. It would have been impossible to insert gold or any other filling except porcelain without sacrificing pulp, as sufficient anchorage could not have been obtained, and to have put a gold contour would have been preposterous. With a large round bur I cut a shallow groove across tooth from mesio-approximal to disto-approximal surface, and made two cavities in groove—one on each side of and parallel with pulp to support pin. After burnishing platinum in groove and over tooth I then inserted pins, and proceeded to contour and bake porcelain inlay. The tooth since that time has been perfectly comfortable, and two months ago when I last saw patient there was no sign of decay and shade of tooth and inlay were just as perfect in appearance as when inserted.

Frequently we have such cases with tooth structure so broken or worn down that without use of porcelain it would be impossible to save pulp. These teeth can be so built out as to appear perfect.

Many times in our practice we find patients who before the day when pulps were treated and teeth saved to any extent, lost some of their molars on account of aching, and were forced to masticate with their front teeth, causing pulp to be almost exposed and sensitive.

By inserting bridge-work and raising bite these teeth can be contoured with porcelain and made perfectly comfortable and serviceable.

AEROFORM—AN AUTO-CLINIC.

BY DR. A. C. HEWETT, CHICAGO, ILLINOIS.

My attention having been called to the new anesthetic, aeroform, I decided to try it myself this morning. Not an hour before, I had eaten a hearty breakfast. Though alone in my office, I had not the least fear, either by reason of the hearty meal

I had eaten or of the anesthetic. From the mouth of a two-ounce vial, not having been able to secure the special inhaler, I took ten inhalations, five through each of my nostrils. Consciousness tactile sensation and muscular movement had not in the least been impaired, but peripheral nerves had been obtunded to the point that sensations of pain could not be conveyed to my brain, though dermal tissues were incised, punctured, lacerated or compressed. Amputation of a finger, lancing of an abscess, or extraction of a tooth painlessly could have been performed upon me, and no further anesthetization would have been required if the operator used reasonable skill in the use of instruments and time. My heart action, which for years has been intermittent in its beating, was sensibly steadied, and not the slightest unpleasant symptom was developed by the experiment.

If that is true (and I aver it), what a field for reform in anesthesia administration is opened up! Who can measure the incentive to study, investigation and experiment offered to your readers. As they peruse the above, and read the writer's plain Scotch-English name (not a foreign unpronounceable one), it will not do for these to say "That does not concern me, I do not know him; true, I have a case of oral surgery to-morrow; I will call in Doctor ——— and let him give an anesthetic the o'd way. If the patient dies it will be the doctor's fault, not mine." Will it be alone the doctor's fault? Signals of danger have been given your readers by deaths all too many, deaths happening(?) every day. A railway has been laid across a continent. It crosses bridged rivers, canyoned and deep; a modern engine is drawing a train freighted with human life at modern speed; a bridge ahead is burning just around and hidden by a curve. A farm laborer signals and stops the train, saying: "Bridge is burning." The engineer asks, "Who are you?" The man answers, "I work on the farm." The engineer rejoins, "You are no railway track-walker, what do you know about railroading?" He opens the throttle, drives on and over the burning structure reckless of weakened timbers and warping rails. Had the train gone down, and death resulted, would the engineer's plea been held good that he had no sufficient warning?

At a future time I may have something more to say to your readers concerning safe analgesia and dangerous, death-dealing anesthesia.

DIAGNOSIS IN ORTHODONTIA.*

BY VARNEY E. BARNES, D. D. S., CLEVELAND, OHIO.

My object in selecting this particular subject is to stir up thought along a line which has been sadly neglected by the dental profession in general, and by many claiming to make a special study of malocclusion, and to present facts that have been overlooked, and some, perhaps, that are new to the average practitioner.

Comparatively little has been written that will aid in diagnosis, and the little that is before us is contradictory. The great majority of our dentists know nothing about diagnosis, and as a result we have delayed correction of irregularities, or far worse, the wholesale extraction of sound teeth to "make room." The literature of the past and present is teeming with illustrations of obsolete appliances, designed to close up spaces after extracting, and with papers and cuts of models, telling when to extract, and showing the results of such barbarous treatment. Throughout the country our dental colleges are teaching, with but few exceptions, regulation by means of extraction. What is the cause of this? *Simply improper diagnosis.* In the past the diagnosis has been made to fit the apparatus at hand, but the present has no such excuse, for we have appliances that are capable of correcting all cases susceptible of correction.

To correctly diagnose a case in orthodontia takes some time, requires a thorough knowledge of the occlusion and eruption of the teeth as well as a special study of both patient and models of his teeth. Let us always keep in mind the fact that we are working upon flesh and blood and nerves and not upon unfeeling dummies.

On the first presentation of a case, your diagnosis must of necessity be hasty and superficial, therefore, almost certainly incorrect in some respect. Moreover, an inspection of the teeth in the mouth does not give all the views of the occlusion. Our first work is, therefore, the taking of an impression. First, the teeth are cleaned and the mouth thoroughly sprayed with an antiseptic solution. This gives cleanliness, a sharp impression, and both patient and operator gain their first confidence in each other. Without the confidence of his patient the dentist might

*Read before the Cleveland Dental Society.

as well not begin to regulate at all; with it, he can accomplish wonders with some of the most unfavorable subjects.

Mouth-breathing, enlarged tonsils and tendency to gagging, should receive consideration in taking the impression, which should be of plaster of Paris. Before the plaster is inserted into the mouth, the patient should be informed what to expect, in order that he may not be frightened. Do not promise anything you cannot keep, and keep your promises. Properly taken, a plaster impression is the *only* one that may be relied upon to give accurate results. A compound impression *will* pull and draw, obliterating lines and surfaces that are absolutely essential to a correct diagnosis. The only place where a compound impression is of value, is in the mouths of patients under six years of age, where no surfaces are undercut, and even here plaster is often more agreeable to these little ones.

During this cleaning and impression taking, the operator should be making as complete a diagnosis as possible through questioning patient and parents, and through observation. Note occlusion, features, eruptions and condition of teeth, age, physical condition, temperament, character and inherited tendencies of the patient. Radiographs may then be made if necessary. The patient may now be dismissed for a week, during which time the models are completed, and the parents have time to look up family characteristics that may have been forgotten or unknown.

The final diagnosis is made when the patient returns. The models are at hand, as are also the facts that are to be considered in reaching a decision. Compare the models, tooth by tooth, with the natural teeth. Locate the occlusion and indicate it on the models by vertical pencil lines dropped from the mesio-buccal cusps of the first upper molars to the teeth beneath. In the case of the temporary teeth, this line is drawn from the second molars. We can now use the models to see the actual irregularity in the mouth and at the same time see the features in their condition of distortion, due to that irregularity. In the study of the models the first thing to be observed is the position of the first permanent molars, the first of the permanent teeth to erupt, and the teeth on which occlusion of the permanent teeth depends. If *these fundamental teeth* are in proper position in the dental arches, whatever irregularity there is, if any, will be slight compared to that in which these teeth are malposed. Dental irregularities *should not be classified* according to the *facial irregularity pro-*

duced, but according to the *occlusion of the teeth*. Malocclusion of the teeth may produce inharmony of feature. Correction of that malocclusion will restore facial harmony in all but the extreme cases where there is a strong racial characteristic, and the writer questions the advisability of attempting to overcome this, excepting, possibly, the most marked deformities.

After noting the first molars, the other teeth may be observed in turn, particular pains being paid to the inclinations. Here is where the accurate plaster model is of great value, for this condition has to be borne in mind all through the operation, and constant reference is made to the model. Some inclinations are so great that a perfect result cannot be obtained. The location of a lateral root beneath a cuspid, shown by X-ray, the lingual eruption of a cuspid and a rotated molar, etc., are instances of hard work ahead with imperfect results at best. Most all cases of malocclusion reveal the necessity for spreading the arches, lack of development of the alveolar process being the accompaniment of nearly every case. Rare indeed is the case in which irregularity is not present in both jaws, for the least displacement of a single tooth means that much displacement for all the teeth in that jaw, and one jaw depends upon the other. With this study of each tooth and of all the teeth in occlusion as presented in the models, we make a partial diagnosis which is made complete by the consideration of the several conditions mentioned previously.

PHYSICAL CONDITION.

Physical condition being good, other conditions may be overcome, but if it be poor, no operation should be commenced until there is improvement of a reasonable certainty that the faulty occlusion is to blame. If occlusion is the cause, the sooner the teeth are occluded properly the better. Physical condition being poor, the cause should be ascertained, and unless it is remedied no operation should be advised. Too rapid growth, confinement indoors, over-studiousness, malnutrition, nervousness, adenoid growths, enlarged tonsils, and the approaching menses in the female, are causes of ill-health that may be detected. The approaching menstrual period in girls, from eleven to fourteen years of age, should receive the most careful consideration, and may be ascertained by questioning the mother. No operation is justifiable at this time unless the girl is strong and unirritated.

There are many who pay no attention to this, but the writer believes they are in error, for at this time many young lives are wrecked by undertaking too much, especially in school work and music. Mothers themselves do not seem to realize the careful supervision that is necessary. Shall we add to the burden, when a little delay will give us a better patient unlikely to suffer a breakdown in health?

Anemic patients are the poorest and in some cases are not to be operated upon unless willing and eager for it, and understanding that it will be painful, tedious and rather uncertain as to result. A sufficient diagnosis of this condition will be the slow healing of wounds, pallor of the skin, and often a mere inquiry of the parents will bring the reply that the patient is under treatment for anemia.

Nervous patients are generally poor subjects, but with their confidence and with careful work they may do as well as the best.

Adenoid growths are found in the cases of mouth-breathers and must be removed before regulation or there will be too great a tendency to a return to the abnormal condition.

Over-study and confinement indoors are conditions that must be changed to get the best results.

AGE OF PATIENT.

Diagnosis of malocclusion may be made as early as three years of age in the most marked cases. Contrary to the general supposition, irregularities are quite frequent in the temporary teeth, and such cases properly diagnosed and treated before the permanent teeth erupt will prevent malocclusion of the permanent teeth. Between three and four years the normal temporary arch should show a separation between the incisors and cuspids. This separation gradually widens to allow the eruption of the permanent incisors. Without this operation there is bound to be irregularity.

Sufficient data is not at hand at present, but there is a great deal of evidence to show that cases of mesial or distal occlusion (taking the lower jaw in relation to the upper) present the irregularity in the temporary teeth; on the eruption of the permanent this is magnified. Correction in the temporary permits the eruption normally in the permanent. The earlier correction can be undertaken, the easier it is, the older the patient the more dif-

ficult, and in many subjects eleven or twelve years is too late to obtain perfect results. Yet forty years is not too old to undertake some types of cases, although the results that may be obtained do not begin to compare with those in younger patients.

ERUPTIONS.

Premature and tardy eruption of the permanent teeth require close attention. The X-ray is of great value to us in finding missing teeth as well as supernumeraries. Decay of the temporary teeth or their premature or tardy loss may delay the eruption of the permanent on account of lack of pressure which prevents normal growth in the jaws. The entire absence of teeth is one of the most serious conditions to be met, and it is only since the advent of the X-ray that it has assumed its serious proportions. In some cases, and they are few, the spaces may be closed up, but most of these cases require the insertion of an artificial substitute which, however, should not be inserted until the patient is at least eighteen or twenty years old. This is at best an evil, but let us remember that our problem is to do the *greatest good* to the *largest number of teeth* for the *longest time*. Perfect occlusion is the greatest factor in the cause of sound teeth; if an artificial substitute will give this, then it is good; if not, then it is bad and must not be used. This problem must be solved in each individual case, for no general rule will hold.

Decayed permanent teeth, as well as defectively formed ones, are often a source of irregularity.

LARGE FILLINGS.

Large fillings close to the pulp must be observed, for these are the cases in which the pulps are apt to die during movement. All cavities are to be noted and must be filled before regulation is begun.

HABITS.

Finger, tongue and cheek-sucking, as well as mouth-breathing, are habits that the diagnosis should reveal. They will, if persisted in, cause irritation when the appliances are in place, and have a slight tendency to counteract the correction, but are not

responsible for as much deformity as they are generally credited with.

HEREDITY.

Inherited types and tendencies must always be revealed by the diagnosis. Make the closest search possible, seeing the relatives and asking questions that will settle beyond all doubt, whether inherited tendencies are present, and to what extent. Some of these tendencies will be so strong that perfect results can never be obtained, although there may be improvement. Other cases, begun early enough, may come very close to perfection. All inherited cases are harder to correct, but are the ones which appear in the very young and are easy to diagnose.

The future may hold much for us in the interpretation of the X-ray. The collection of models of very young subjects are sure to teach us much that is to-day unknown or at best uncertain. Let us, for the present, aim high. Let us study harmony of feature and normal occlusion and base our diagnosis upon this, then what we learn in our close study of the patient and models will enable us to foresee the exact results of the operation.

Extraction in the correction of malocclusion, whether through haste, ignorance, lack of time or financial reasons, must soon be classified as malpractice, where it belongs and where it is placed by the foremost orthodontists of to-day.

Duty urges us onward to do, not what seems easiest, but what is best.

PAINLESS DENTAL OPERATIONS.

BY DR. GEO. B. SPEER, YOUNGSTOWN, OHIO.

I would like to say a few words about this much-talked-of question, "Painless Dental Operations." I am not a painless dentist, yet I would gladly use any instrument or drug to make my operations painless, but I will not leave a cavity half prepared in order to avoid pain and expect the patient to return two or three time, as some one has said, to have the work done over. The dentist who does so is courting the loss of his best patrons, as few will return the first time and less the second

time, and the third returners will be few, and you will not need to be told how they appreciate painless work. You can see it in their faces, and when they enter your waiting-room where you may have some patrons and say: "Doctor, that filling is out again. Can't you fill a tooth so it will stay? My friends tell me their work stays and they don't spend all their time at the dentist's." Now, such language, whether uttered in your office or some other place, will not bring you work, but will do you damage to the end of your days. I am surprised that any dentist would have such thoughts and more surprised that he would publicly state them and thereby induce some young dentist to court failure and disaster which is the outcome of such ideas. I used the words "young dentists," as I do not think old dentists would follow such advice. I see quick work is advocated, and I think that a fatal mistake. I have yet to see good work done without taking good time to do it.

I was refilling a tooth a short time ago. The first work had been well done and I said to the lady: "That filling has been in some time." She said, "yes, sir. Dr. Fred Whitslar did that for me about twenty-five years ago, and if he was not getting so feeble he would be doing this now, and the reason you are doing it is because he told me to come here."

So not only did his good work keep his patrons, but they follow his advice after his days of usefulness as a dentist are past. Another point I want to impress on my readers here is that those well-pleased patients are the people who pay good prices without complaint.

I always try to do my work with as little discomfort as possible. Use sharp instruments and the proper touch, and there is no need to hold people in such a grip as to bruise the flesh or to jab the instruments into the gums, keeping the patient in a state of fear all the time. Whatever you do, do it as if you knew just what you were doing; have confidence in yourself and you will soon have the confidence of your patient, and that is the essential thing for you to have. For when your work stands and your patrons have confidence in you, both in your honesty and ability, you will need no other advertisement.

I will say to my brethren, do your work as you would want for yourself or as you would do for your own wife or child, and you will be a friend of humanity and an honor to the profession.

AN INTERESTING CASE OF NECROSIS.*

BY W. H. HALLER, PORTSMOUTH, VIRGINIA.

There was very little surgery connected with this case, but it was interesting to me for the reason that I could find no cause for such conditions. The patient was a boilermaker, employed in the Navy Yard, 29 years old and apparently in good health. I first saw him about the first of October, 1903, when he was sent me by his physician, to extract a first superior left molar. I found the tooth sound but the palatine root entirely denuded and a semicircular ulcer extending up on the palatine mucous membrane. The tooth was very sore to percussion and surrounding tissues highly inflamed. After extracting I found the root entirely free from calculus except some little salivary calculus about its neck.

This tooth first began troubling him about the first of September, 1903. During November his physician sent him to me again, when I found the second bicuspid in the same condition as the molar. The ulcerous surface and inflammation had extended until they involved the greater part of the mucous membrane on left side of the palate. The tooth was very sore and loose. I extracted it and found some deposit on the root, but very little. The tooth was sound in every particular.

I advised him to see his physician for further treatment and did not see him again until January 1, 1904, when he came to me to have what he supposed to be a root extracted. It proved to be a piece of the alveolar process showing through, and on examination I found quite a large piece of exfoliated bone. I phoned his physician, who came down and we removed an irregular piece about an inch in length and involving one-half the floor of the antrum. I continued treating the case from that time and on January 30th removed some edges of necrosed bone with chisel and still later found an ulcer starting just over the palatine root of the second molar, which I bored out with a stick of nitrate of silver, and it healed without further trouble. I continued treating the case with peroxide of hydrogen and glyco-thymolene until it healed thoroughly, and there has been no further trouble. The patient has never had syphilis and there is no history of syphilis in his family.

*Read before the Virginia State Dental Society, August, 1904.

His physician thinks the trouble was due to irritation from the teeth extracted, but I cannot see why such a little deposit on the root of one of these teeth could produce so much trouble in so short a time. My idea is that it was due to phagedenic pericementitis involving the apical pericementum, causing death of the pulps, infection and pus discharge. But if this be true, there is no evidence of any other teeth being affected to this time.

The patient states that six years previous he had a similar trouble on the right side of his mouth, which disappeared without treatment and has made no further reappearance.

RECIPROCITY.*

BY DR. H. WOOD CAMPBELL, SUFFOLK, VIRGINIA.

The subject of this paper is one that is to some degree claiming the attention of the examiners of the various States in the United States, and justly so. There are circumstances arising that compel men to pass from one section of our country to another, that it is needless for me to enumerate here; reasons that in themselves are perfectly just and right, but under the present laws of the various States such men are stopped at the threshold of the State by the examiners, who say, "Pass our board before you can practice in our State." It is the State's right to say this, and not even the Federal Government can say them nay—for the question involved is one of police protection and internal government which the United States Government recognizes as a matter for the individual State to exercise exclusive jurisdiction over, and the United States would no more attempt to regulate these matters than it would attempt to regulate the proportion of taxation on personal or real estate, or the law regulating county and municipal elections, etc. In other words, the States have a right to police their own territory in so far as they do not transgress the laws which regulate the free and uninterrupted exchange of interstate business. A State can, by the exercise of its own police restrictions, prohibit the sale or manufacture of impure and adulterated food stuffs within its borders and can confiscate such food stuffs if they are shipped

*Read before the Virginia State Dental Society, August, 1904.

into its borders, unless such shipments are made in transit, when it has no power to confiscate, or in any way interfere with the goods. In the same manner the people of a State may prohibit the manufacture and sale of intoxicating liquors within its borders. It can constitute boards of control and say who shall practice medicine, law and dentistry within its borders, and no interstate commerce or other Federal law can now interfere.

It will be seen, if the foregoing remarks are facts, that the State, and the State alone, can say whom it judges fit persons to practice the professions within its borders.

Reciprocity, then, simply means an agreement between the various States in whole or in part by which persons may pass from one State to another and practice their professions upon such reciprocal relations as may be agreed upon by the States.

Reciprocity necessarily would mean something less than a re-examination by each Board in the States, as persons may now freely pass from one State to another upon passing the required examination.

Many schemes have been proposed as a solution of the problem of reciprocal relations. I will call to your attention one or more in passing:

First, it has been proposed that a National dental law be passed by Congress which would be binding upon all States.

Second, that all State Boards have identical questions and hold these examinations at the same time in all the States. The questions for this proposed plan to be formulated by a committee appointed by the National Dental Association, or the National Association of Dental Examiners.

Third, to have a central examining committee with power to issue an interstate certificate upon passing an examination which contemplates a very rigid course in dental surgery, etc.

I do not deem it worth the trouble and time to undertake to show the fallacy of these proposed plans. They are neither practical nor feasible, and are only mentioned to show the trend of thought in the profession regarding the subject of interchange of licenses.

The National Association of Dental Examiners has, from time to time, discussed this question without reaching a conclusion as to what is the best method of solving the problem, and until last year at Asheville, N. C., there has been no resolution

passed by the National Association of Dental Examiners looking to an answer to the question.

At the meeting in Asheville, Doctor Stockton of New Jersey, introduced the following resolution, which was adopted:

"Resolved, That an interchange of license to practice dentistry be, and is hereby recommended to be, observed by the various State Boards on the following specific conditions:

"Any dentist who has been in active practice for five years or more, is a reputable dentist, is a person of good moral character and is desirous of making a change of residence, may apply to the State Board of the State in which he is a resident and has in his possession already a certificate, for a new certificate, which certificate being granted may be deposited with the examining Board of the State in which he proposes to reside, and the State Board in lieu thereof may grant him a certificate allowing him to practice."

This resolution in my opinion comes nearer being the answer to reciprocity than any suggestion yet offered, and with certain safeguards I would recommend that Virginia adopt it. The practical working of this plan, even were it satisfactory to the various State Boards, would be impeded and often check-mated by the existing State laws, as the laws in many States only contemplate examination for permission to practice, hence the States which would practice reciprocity must first agree to put their laws in harmony on the resolution before it could become operative, and any movement along this line means time and the co-operation of the State Boards backed by the consent and the moral support of the State societies.

As an individual I would be opposed to any form of reciprocity which would take out of the hands of the State Boards the strictest surveillance of any and all transfers, for the reason that there is danger in many ways to the best interest of the profession lurking behind anything which would tend to allow easy and uninterrupted change of location. A little thought will convince any one of the truth of that statement.

I do not think with some that if there were a system of reciprocity allowing free and easy communication between the States that there would be a great amount of moving—certainly not among the better element of the profession. I cannot say, however, that there would not be much migration of a class of

men who substitute noise and ostentation for brains and printers' ink for ability.

These vampires, after sucking the blood from any given community, would fly to other and more congenial climes to find victims. The work of the Boards is pre-eminently the elevation of the standard of dental education, not as teachers, but as inspectors of what is taught. The Boards stand as a unit against unethical conduct and undertake as far as possible to guard, both morally and professionally, the State's interests as to the kind of men who enter its borders; this is the aim of the Boards, but, unfortunately, not all Boards examine alike or think alike; for instance, Virginia will reject some men who go to another State and are promptly passed by the Board, and *vice versa*. Therefore, the time limit of the Stockton resolution comes in to relieve the situation, as it doubtless does occur that good men fail to pass the Boards sometimes, as it certainly does that bad ones sometimes pass in spite of all the care of the Examiners.

After a man has practiced in a State for five years, has proven his ability, has shown himself to be an honorable upright practitioner, why should he not be allowed to practice in any of the States of the Union? I answer, there is no reason.

The bugbear of reciprocity is the uneducated, conceited product of the dental college, commercial dentists done up in packages and dumped on the long-suffering Boards and the unsuspecting public. It is emphatically not meant by the foregoing remark that the total product of the schools is bad and incompetent, but I am convinced that twenty per cent. is, and that this twenty per cent. sooner or later percolates into the profession through the meshes of some one of the Boards, or under existing laws in some of the States, registers on a straight diploma.

Is it strange that reciprocity should be viewed with suspicion by the high-class States? True, it is, that in some, if not all, of the high-class States there are low-class dentists and "pity 'tis, 'tis true." This being so, it is a question in the minds of some whether reciprocity would not tend to aggravate the troubles in some quarters. It is he'd that each State should desire its good men and be compelled to keep its bad ones.

The kind of reciprocity for which I would work and cast my vote is that which would give our good men in every State free access to every other State and would tend to confine the

undesirable element to the States responsible for their certificates.

I am of the opinion that this is the aim of the Stockton resolution, but a close analysis of the text of the resolution will convince any one that it has not safeguarded the interests of the States properly. The form of a reciprocity resolution which would safeguard the public against charlatanism, to my mind, would be as follows: "Any person desiring transfer from one State to another may, upon application to the president of the State society, obtain a permit stating the number of years more than five years that he has been in active practice in said State and all other data which the Board of Examiners may require, made out on blanks furnished by the State society and signed by the president and secretary of the said society, which permit will entitle the holder to a transfer certificate, provided the Board of Examiners, after examining his credentials from the State society, judges the applicant worthy of a transfer certificate, upon the following conditions, viz: The applicant shall surrender to the president of the State Board his certificate of registration in the State from which he proposes to move, said certificate to be held by the Board of Examiners, and a record shall be made of the same on the books of the secretary of the Board together with all necessary data concerning the person so transferred. A record shall be made in the Clerk's Office of the surrender of all certificates. Transfer certificates shall be issued to persons who shall fulfill all the foregoing requirements, upon blanks furnished by the Examiners which shall contain all information which the Board may deem fit. Said transfer certificate shall be presented to the president of the State Board in the State in which the applicant desires to practice, and if properly attested, will entitle the holder to a certificate to practice. No transfer certificate shall be granted to the same person to move from the State into which he was transferred in less than five years' time other than to transfer back to the State granting the original transfer. The Board of Examiners shall be the sole judge as to whether a transfer shall be granted to any person applying, and the Board of the State to which a transfer is given shall be the sole judge as to whether such transfer shall be accepted and a certificate to practice be issued."



SOME USES OF FORMALDEHYDE IN DENTISTRY.*

BY DR. E. H. EWALD, PORTSMOUTH, VIRGINIA.

Though discovered nearly one-half century ago, this drug has come into general use only within the past ten years. Its past record though, has placed it beyond the experimental stage. My experience with this preparation (not a success in all cases), has led, I might say forced, me to keep it close at hand. Those cases in which cocaine, arsenic, etc., would produce poor results, have, in a large per cent., been conquered with formaldehyde. I speak of those quite often found now, crown portion of pulp dead and decomposed, but that in roots in a highly sensitive condition. Sealing in some four per cent. formaldehyde with a little cocaine added, has often brought about a most happy result. With every precaution, there may be in some cases quite a little irritation. Merck, I believe, says "it is non-irritating," but an experience with some under the finger nail will disabuse you of this idea. I will cite a case that came to me, which very much added to my admiration of the drug: The patient, a lady and of a very nervous temperament, presented herself, suffering with a most aggravated toothache. She wished to have a badly broken-down left lower bicuspid extracted, telling me how sore and quick it was. I felt that most probably failure stared me in the face.

The idea came to me, that as a last resort, to advise gas; before doing so, it occurred that probably it would be well to advise with Doctor Walker, who I learned had used it before with some person. To my dismay Doctor Walker advised anything else; as he had quite an unsatisfactory time with its use. At Doctor Walker's suggestion, I placed in the tooth as well as I could, some forty per cent. of formaldehyde with a little cocaine added. and was most gratified to find the pain leaving in a very few minutes, and in a short time the patient left the office in a very happy mood.

My most satisfactory results have been in the treatment and cure of fistulas; some in which every other remedy failed. It is said: "Put on rubber dam, medicate, fill." It may be I don't know how, but such treatment does not always bring about desired results in my hands. Probably replantation would short-

*Read before the Virginia State Dental Society, August, 1904.

en some long and tedious treatments, or going through the alveolus, etc., but desperation only would drive me to such procedures, I have some cases of five years' standing, seemingly cured by the use of about a five per cent. solution of formaldehyde forced through with a dental syringe. The pain in its use lasts only from five to fifteen minutes, afterward using glyco-thymolene, or a carbolized solution five per cent. Usually two or three treatments will bring about a cure. Another use in my office is in instrument sterilization in the form of formaldehyde gas. It is best in this form for instruments with wood handles, etc.

Don't expect cures in all cases, nor treatments without pain, but in such cases as I have mentioned, you will surely be gratified with results. Hoping I have not been too extravagant, causing disappointments in its use, I trust it may prove a friend in need, and win some admiration from those of you who are not now its users.

THE "GUARANTEE MAN."*

BY DR E. P. BEADLES, DANVILLE, VIRGINIA.

Any honest profession or calling is honorable and dignified just in proportion as the men in it are honorable and dignified. All professions had a lowly beginning; being born in ignorance and superstition. they have, through the slow process of evolution, shaken off the rubbish to a large extent. Dentistry is no exception. From the Chinaman who pretends to extract a worm from the offending molar to the learned D. D. S., M. D., Sc. D., etc., is a far cry; but our profession had to travel the road. Nor have we gotten rid of all the undesirable excrecences.

To my mind one of the most objectionable things done by members of our profession is to "guarantee." It may be supposed that only the "dental parlor" man is guilty of this; but I am afraid that many, otherwise reputable practitioners, do this thing.

One who will guarantee an operation to last indefinitely must be classed as a very thoughtless man, or a very ignorant

*Read before the Virginia State Dental Society, August, 1904.

man, or a knave. Sometimes we say, "this will last you a lifetime," not really meaning to promise such a thing; but the patient takes the words seriously. If in a short time there is failure the impression made upon the mind is very bad indeed. If the patient believes you to be the "best in the land," then the feeling is that dentistry in general is a failure and it is useless to spend money and time upon it. Thus the whole profession is brought into disrepute. The least that can happen will be a distrust of you as a dentist; for you said it would last a lifetime and it has not lasted a year.

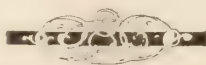
Doubtless there are many in the second class, who are ignorant enough to believe that this work will last a lifetime, or perhaps it is put at ten years. This man should be better informed. He should know that all parts of the human body are closely related, that any change in one part may seriously affect a distant organ, that any deficiency in nutrition or an excess of acid may start the disease of the teeth known as "decay." He should know that "filling teeth" is only a method of treatment for a disease and not a preventive and that the same causes which produced the disease in the first instance may do it again. No power on earth, much less this poor "guarantee man," can prevent the return of this almost universal trouble. The fundamental principle of medicine is to remove the cause, and in our treatment we do not touch the cause. The patient can do much in a prophylactic way; but we can do little, except to instruct. The ignorant man should learn these things and impress upon his patient that when the trouble returns the cure must be again applied. It will save a world of trouble and explaining if you practice dentistry upon "the best I can do" plan. "I will do the best possible thing for this case and let the results be what they may." Neither dentistry, nor general medicine, is an exact science, no positive promises can be made; we may *believe* very strongly, but we cannot "say for certain." "Honesty is the best *policy*." If you do not promise too much you can more easily keep those you do make. When the expectations of your patient have been raised very high, you will have great difficulty in seeing them realized.

The last class is perhaps the most numerous, those who "guarantee" knowing that such a thing is impossible. Their only object being to increase patronage by false hopes. It will prove

a "false hope" on the part of such dentists if they think this method increases practice—in the end it is ruinous, and as said above, not only hurts themselves, but hurts the whole profession. This thing is not confined to the charlatan. A patient came to me recently, from one of the most reputable practitioners in my State, with a loose filling; said the dentist told him he would give a hundred dollars if he, the patient, could get one of those fillings out. Now this was a safe promise to be sure; but the patient evidently took it as a sort of guarantee that those fillings would *never* come out, when within a year, one at least, had to be replaced.

Why is it that the question is so often put to us, "Do you guarantee your work?" The dentists themselves are to blame for this impression upon the public mind. The best answer is that of a well-known North Carolina dentist who replies, "I cannot do what God Almighty did not do, he has not guaranteed your teeth, neither can I." I sometimes say, nobody but a fool or a knave will do such a thing. In my younger days when the crown system came into general use I thought a promise could be safely made, and sometimes said that ought to last a lifetime, till the day of retribution came. I removed a crown one day and found the entire tooth gone. No promises since, nor no "lifetime" expressions from me. One had some reason to promise with a hermetically sealed cap, where the fluids of the mouth cannot reach the tooth structure, but even this will not always do. I know more now than I did then.

Take your patients into your confidence and tell them all that you know. If the work fails they will come back with no abuse, but will give you an opportunity to try again. In the new porcelain work one must be especially careful. To a certain extent this work is still in an experimental stage, and we should not promise too much. A man may guarantee that he can swing a door so that it will stay bolted, but when he operates upon any part of the human body, in view of the possible systemic changes, he cannot say what will happen.



SOME EXPERIENCES WITH ADRENALIN
CHLORIDE.*

BY DR. WILLIAM PILCHER, PETERSBURG, VIRGINIA.

The value of this drug as a styptic was first brought to my attention by our lamented friend and brother member of this society, Dr. Chas. L. Steel.

He recited to me a case in which he gave chloroform while another dentist extracted all the teeth for a patient. This was on Sunday, on Monday her gums were still bleeding and nothing seemed to stop them. Plugging was resorted to and also the use of Monsel's solution. The bleeding had progressed to such an extent that the patient became very weak and the symptoms alarming. Adrenalin was resorted to and it worked like a charm.

It was applied on pledgets of cotton placed into the bleeding sockets. In a few moments a white line began to form around the margin of the sockets and the flow subsided and did not return.

The success attained in this case was so pleasing and gratifying that I made haste to procure a sample of the solution. I had just previous to this had a very alarming case of hemorrhage, following the extraction of two lower molars. Something that would stop bleeding from the gums of hemorrhagic patients after extraction was very welcome and it was for this purpose I purchased the first adrenalin I used.

I found the package everything that was claimed for it as a styptic. I used it freely whenever I wished to stop the capillary flow of blood.

When patients come for extraction and also with a history of previous extractions showing great loss of blood, I proceed without any fear of not being able to repress the hemorrhage.

One instance is brought to mind, that of an elderly lady who wished her remaining lower teeth extracted, most of them already loose from pyorrhea. Having alarmed her physician by a stubborn nose bleeding, she came to me in great trepidation, fearing a prolonged hemorrhage. Her blood did not seem to coagulate at all. The prompt use of adrenalin caused the hemorrhage to stop quickly and in a much cleaner and less

*Read before the Virginia State Dental Society, August, 1904.

bunglesome way than from the use of Monsel's solution.

For the extraction of roots after the crown of a tooth has been broken off it is a very valuable agent. Apply a pledget of cotton saturated with the solution and in a few moments you can see the root plainly and every means can be accurately applied to remove it.

It is a great convenience also when bleeding has been caused at the gum margin in approximal cavities from injury to the gum, either accidental or intended, as in the case of the gum tissue partly filling the cavity. When this is removed the hemorrhage is quickly checked by the use of the solution. Also when you wish to set a crown after injury to the gum in cutting down the root.

In extirpating pulps I found that I could remove them almost bloodless by dissolving my cocaine crystals in the adrenalin solution. This is a very convenient method, as it is a great time saver, as well as preventing the blood from remaining in a clotted state in the root canal or coronal portion, and aids materially in preserving the color of the tooth after filling.

The use of this solution also causes the cocaine to act more promptly by retarding the flow of blood.

I have heard some complaint of the failure of adrenalin to act on the capillaries as it is supposed to do. My experience with one package was such as would cause me to distrust it had I not used some with such good results.

It does not seem to run regularly, or is affected by age, although the package be not broken. The solution, however, that I have found to work well when the package was first opened, had the same properties when the last was used at least one month afterward.

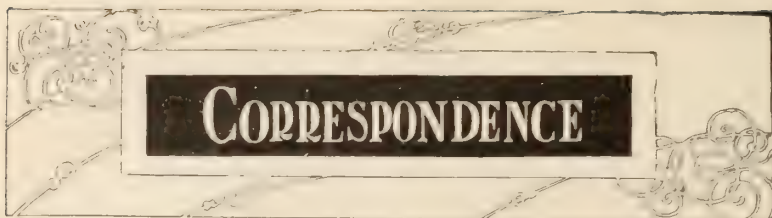
I have used the solution made by two manufacturers, but have gotten good results only from that put up by Parke Davis & Co.

Taking into consideration the failure at times, I believe adrenalin a valuable agent and worthy to be kept in every dental office.

I'll cite a case in which adrenalin was used in pulp extirpation. Mrs. S., whose left canine had quite a large mesial cavity with the pulp almost exposed and sensitive to a slight breeze when her mouth was open, in fact the removal of the

dentine did expose the pulp. After removing as much of the decay from the cavity as was possible without inflicting pain, I placed a small pledget of cotton in the cavity saturated with a solution of cocaine and adrenalin, and used pressure by means of a rubber plug. This was repeated several times, removing as much of the tooth structure as possible just over the pulp between each application. In about ten minutes the pulp was taken and no hemorrhage followed.





CORRESPONDENCE

THE ADMINISTRATION OF CHLOROFORM.

An article appeared in *THE DENTAL SUMMARY* of February, 1905, under the title "Administration of Chloroform."

The writer of the article makes certain claims and statements to which I wish to take exception.

He says in part: "If properly given and chloroform pure it is the safest and pleasantest to patients of the anesthetics (except nitrous oxide gas, and it is doubtful if that need be excepted)."

It is surprising to me that chloroform should be compared to nitrous oxide as to safety and pleasantness by any one who has administered these agents at all.

Although the unreliability of statistics is proverbial, and the data bearing upon the question of the relative safety of the anesthetics vary greatly as to relative ratio, nevertheless all comparative tabulations of anesthesia with the different anesthetic agents show nitrous oxide to be far in the lead as being free from fatalities.

If it was the comparative safety of chloroform and ether, I could see some little ground for argument.

Professor A. Jaquet, of the Faculty of Medicine of Basle, says in the *Semaine Medicale* of December 7, 1904: "Chloroform greatly depresses the heart as well as the respiration and also lowers blood pressure; ether on the contrary does not weaken those functions until an extreme toxic dose has been administered."

Professor H. C. Wood affirms from extensive observation, that chloroform is a direct paralyzant of the heart muscles, and that the fall of blood pressure which occurs in chloroformization is in great part due to this direct depression of the heart.

"Nerve tissue is killed when exposed to contact with chloroform vapor, while with ether vapor of the same relative dilution, only a temporary functional paralysis is produced."

With ether there are no appreciable histological lesions taking place in the organism, and none is possible with nitrous oxide, while chloroform produces parenchymatous degeneration of all the organs, and if an organ is already enfeebled this extra degeneration is apt to prove serious to the patient.

One of the greatest disadvantages of chloroform is the slowness of which it is eliminated from the system, and the persistent nausea and vomiting which is a direct result of this elimination through the gastric-mucosa. Often post-anesthesia sickness is more annoying and calls for more treatment and attention than does the operated area.

Chloroform, without a doubt, is more dangerous than ether; nitrous oxide is far less dangerous than either, all, of course, being properly administered.

What I would consider a proper method of administering chloroform does not agree with the one put forth by the Doctor from St. Paul.

He says: "Lay the patient horizontally on the table, raise the shoulders slightly, raise the head forward to the angle of forty-five degrees so the patient will lay comfortable and can breath through the nose with ease; but when told to breath through the mouth, does so with effort," etc.

The absurdity of this claim will appear to any one who has had the opportunity to observe a prolonged chloroformization.

By all means lay your patient horizontally on the operating table and put a small pillow under his head, not to throw it forward to an angle of forty-five degrees, however, but to keep it in a straight line with the body, neither thrown back on the spine nor flexed on the chest.

This position is maintained until we have complete anesthetization, at which stage the reflexes will be abolished to a great extent.

We would remove the pillow at this time, as the respiration is more than apt to be harrassed by obstruction caused by the tongue and adjacent muscles. When this occurs, we grasp the patient on either side of the head below the angle of the lower jaw, and put the head backward, at the same time forcing the jaw upward and forward.

This position puts the muscles of the tongue and neck on a tension, and leaves the respiratory tract straight, free and unobstructed; the embarrassment will disappear at once.

If the head was thrown forward at an angle of forty-five degrees the respiratory tract would be almost completely closed by the tongue and muscles dropping back over the glottis, and this position would have a tendency to choke off respiration, because of the angle that would be put in the respiratory tract, which condition in itself would prevent the free ingress of the air.

On seeing a person gasping for breath, do they throw the head forward to an angle of forty-five degrees, or do they throw the head backward and force the lower jaw forward and upward?

A word as to administering the chloroform:

Have all appliances and restoratives at hand that may be needed, such as plenty of chloroform, inhaler, oxygen, hypodermic syringe, sterilized water, nitro-glycerine, strychnia, nitrate of amyl capsules, tongue forceps, etc. Gain the confidence of your patient and you will have removed a great danger from the anesthesia, which is fear.

Put a few drops of chloroform on the gauze and hold it six inches or so from the face, gradually approaching nearer, giving the system time to become accustomed to the new order of things.

Add drop by drop continually throughout the operation, maintaining an even equilibrium between the introduction and the elimination of the vapor. Do not saturate the gauze and force the patient to inhale a toxic dose, for it must be remembered that more than five per cent. of chloroform with the air is not safe.

Chloroform is not an anesthetic to be used in dental surgery; it is contraindicated because of the after sickness, because of the sitting posture which is required for this work, and above all because we have a far more safe and pleasant agent in nitrous oxide and oxygen.

We do not have the excuse any more that we cannot maintain anesthesia long enough to accomplish the work in hand, for with nitrous oxide and definite quantities of oxygen properly administered, we do maintain profound anesthesia, lasting any length of time consistent with modern surgery, either within or without the oral cavity.

C. K. TETER, D. D. S.

Cleveland, Ohio, February 21, 1905.



SUGGESTIONS

BACKING FACINGS.

Doctor Coyle.

I use thin 24-k. gold and push the pins through same, thereby making the joint around pins close enough to prevent borax getting through and soldering following. After sinking the facing well into the warmed compound, the compound is trimmed so that it is on a plane with the labial surface of facing at the incisal end. The gold is then placed upon facing and swaged into the compound by holding a soft stick against it and tapping lightly with a hammer. That part of the gold projecting beyond the incisal edge is now burnished down to the compound where it was trimmed. This plan insures enough, and prevents an excess, of solder at this edge, saving much time. I do not grind facings to a feather edge, but bevel them somewhat, and am very careful to make incisal edge perfectly smooth, using for that purpose, after grinding down with a carborundum wheel, a small flat Arkansas stone—*Texas Dental Journal*.

SOLUTION FOR ETCHING PORCELAIN INLAYS.

Jos. Head.

Porcelain inlay workers usually undercut their inlays with a diamond disk, but for those who prefer to etch the back of the fillings with hydrofluoric acid, the solution of hydrofluoric acid called "white acid" is valuable. Hydrofluoric acid makes a smooth etch. White acid makes a frosted etch. It can be bought under the name of white acid, but is much more efficient if freshly prepared and kept free from the air, as it has the property of absorbing moisture, which destroys its good qualities. It is prepared as follows: Make a saturated solution of ammonium carbonate in hydrofluoric acid, using a lead dish. Evaporate

to one-half its bulk. Add hydrofluoric acid up to original bulk and evaporate again to one-half its bulk. This solution should be kept in a gutta-percha bottle. It will give a surface to the filling to which the cement will tightly adhere.—*Dental Cosmos*.

CONCERNING ARKANSAS STONES.

W. C. Gowan.

Wash your Arkansas stone with soap and water and never again use oil upon it. While operating keep it on the bracket table and sharpen all cutting instruments, with water only, before using. Water is more cleanly, efficient and presentable than oil. It oxidizes the particles of iron and the oxide aids in producing a keen edge.—*Dental Review*.

POLISH FOR ALUMINUM.

J. Mills, Brantford, Can.

Procure from a hardware dealer a supply of universal metal polish (Putz Pomade) and apply the smallest amount possible to a thin cotton wheel by means of a piece of wood, upon which a small amount of polish has been placed, and held against the wheel while running the lathe. The polish should be used without water.—*Dental Review*.

REMOVAL OF DRILL BROKEN OFF IN ROOT CANAL.

Doctor Fernandez.

In anterior teeth and others easy of access, enlarge the canal and if possible try to loosen the broken drill, and with the water-syringe inject a stream of water into the canal suddenly, and with as much force as possible. If this plan fail, employ the following method: Enlarge the canal as in the first place, and try to loosen the broken drill as before. Now take a small piece of German silver (No. 32 standard gauge), bending it in tube form to the size of the broken shank. Now solder one end of the tube to the shank of the drill, as neatly as possible, so as to allow no overhang of solder which would impede its progress in the canal. A tube has now been formed that will, if accurately made, fit

over the broken piece. I might mention that the addition of a little snellac varnish, placed in the mouth of the tube, will facilitate the operation considerably.—*Dental Cosmos*

PREVIOUS SEPARATION FOR CROWNS.

A. M. Lewis, Austin, Minn.

If we expect to make a crown that will bear inspection and will not be a menace to the integrity of the tissue in the interproximal space, we are called upon to consider another important condition, and that is to have complete separation. There is a strong inclination among practitioners to avoid this most necessary procedure. Too many of us have removed crowns where the contact extended from the gingival margin to the occlusal or incisal surface. The dollar seems uppermost in the minds of many dentists, and they try to convince themselves that it is better to make the crown at once and place it in position than to take the time to separate the teeth and run the risk of losing the patient. These crowns may preserve the root of the tooth, but they do much harm to the gums and health of him who wears them. They also are failures.—*Dental Review*.

METHOD OF MAKING SURFACE OF WAX SMOOTH.

A smooth surface on a "waxed up case" can be obtained without spoiling festoons or gum carvings by adopting the following method: Smear the surface of the wax with a pellet of cotton saturated in chloroform. Burn off the chloroform with an alcohol lamp or a small Bunsen flame. This will leave a smooth, glossy surface on the wax and will destroy previously carved gums.—*Dental Review*.

PORCELAIN INLAY CEMENT SHADE GUIDE.

C. M. Baldwin, Chicago.

To make a cement shade guide: On a stiff white card make a list of the cements you use for setting such inlays, putting down the maker's name and the colors: Number the list, cork and labels of the powder bottles to correspond with each other. Mix

liquid and powder from each color in the same proportions as for setting an inlay, and stick each sample opposite its number or name on the list. Such a guide will readily show your variety of colors and shades and will perhaps indicate the need of more powders. Colors can be altered by mixing two or more powders of different shades before adding the liquid.

The judicious choice of the color of the cement used will help correct the shade of labial inlays that may be a little off color, and will not alter the appearance of the inlay that is satisfactory before being cemented to place, except as all cements change the rays of light.

Cement guides should be kept clean, free from dust and finger-stains, and should be replaced or fresh samples of cement should be mixed and placed on the same list when the old ones become soiled or the colors so faded as to be unreliable. There is a great difference in the extent to which the different makes and colors of cements fade, for while some remain almost unchanged others fade very perceptibly. Experiments should be conducted along this line and results noted, if we want our inlays to match the teeth as well in a few months as when inserted.—*Dental Digest*.

COMBINATION LOWER PLATES.

R. C. Mathias, Los Angeles, Cal.

Much inconvenience is often experienced by patients wearing partial lower dentures where part of the anterior teeth remain, because of the bulk of rubber that is of necessity used to give strength to the arch of the plate which holds the two lateral portions of the plate in position, and passes back of the anterior teeth. This can be overcome to a great extent by building the anterior portion of the plate with medium or large sized platino-iridium wire such as is commonly used for posts. In wire of this kind there is sufficient rigidity to hold the lateral portions of the plate—which is of vulcanite—in their positions. This method, while not original with me, has given me satisfactory results.

Take the medium or large-sized platino-iridium wire; not platinum wire, because it has not the strength that platino-iridium wire has. Begin on one side by flattening about half an

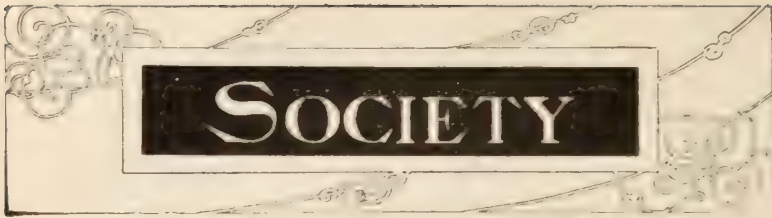
inch of the end of the wire, notching or roughening it; start to fit the wire to the plaster model about half or three-fourths of an inch back of the place where the last of the patient's teeth are and the vulcanite is to begin. Let the wire lie directly over the alveolar ridge, but a little above it. Run it up to the last of the patient's teeth, and bend it in around this tooth as you would fit the vulcanite plate at this place around the neck of the tooth. Let the wire follow the general outline of the teeth till you reach the last tooth on the opposite side, around which you should fit the wire so that it closely approximates the neck of the tooth to the middle of the distal surface. Then run it back over the alveolar ridge, flatten, and roughen as before described.

If clasps are desired you can fit them, place them on the model with the wire in position, wax, remove, invest, and solder. When the wire and clasps (if the plate is to have clasps) are soldered and in position on the model, wax it up as you would any vulcanite plate, leaving out the bridge of wax behind the anterior teeth which would afterward be substituted by vulcanite.

When waxing up your case, do it so that the ends of the wire are invested well in the wax. In making plates in this way you do away with the liability of the plates being broken at the arch at some future time, and also have the advantage of less bulk, less weight, and fully as much strength.

The wire should be so fitted that it just clears the gum back of the anterior teeth, as pressure here would result in irritation and an uncomfortable feeling.—*Dental Cosmos*





LEWIS AND CLARK DENTAL CONGRESS.

The coming Lewis and Clark Dental Congress promises to be one of the largest and most interesting dental meetings yet held.

Since first projected there has been a largely increased interest shown and an immense widening of its scope.

The movement of the Congress has developed so rapidly, and over such a greatly increased territory, that it has become necessary to appoint committees in nearly every State in the Union.

The committee in charge say:

"There seems to be no question of our having an immense meeting from this territory alone, and the prospect of a large attendance from the east is growing brighter daily.

"The societies of Oregon, Washington, California, Idaho, and that of British Columbia, have formally adjourned their meetings for this year, in order that their entire membership may attend this Congress. From these five societies alone, we can safely count upon an attendance of 1,000 dentists. And there is the possibility of the States of Utah and Colorado joining with us, by adjourning their societies for 1905.

"The low railroad rates of \$56.00 round trip from Chicago, and \$45.00 round trip from Missouri river points, with 90-day limit on tickets which will be good coming to the coast by one route and returning by another, will make the trip one of pleasure and interest to our eastern friends.

"Our meeting will close in time to allow for the trip east to attend the National Association meetings in Buffalo.

"Our program is rapidly assuming a size and interest, such as was given at St. Louis last year, and we are assured of an exhibit of dental goods equally as fine.

"The climate of Portland in July is ideal for holding conventions, and all may be assured of escaping the heat of an eastern or southern summer.

"We wish particularly that our eastern friends will embrace this opportunity to visit us, take part in the Congress, and see the great Pacific Coast and northwest. It will be possible to spend a most delightful and interesting vacation in this manner, and you will have the privilege of visiting Yellowstone Park and the magnificent Columbia river, and the

various points in California. The climate of this city in July is ideal. At no time in the immediate future can the trip be made at such small expense as this year.

"Accommodations for visitors may be secured, and rooms reserved in advance, by addressing the Hotel Portland, the Imperial Hotel, and the Perkins Hotel, or in private houses from the Lewis and Clark Accommodation Bureau, which, under the supervision of the Fair officials, has secured a large number of desirable rooms at reasonable prices. Later I shall be able to give you more definite information on this point. Now, however, I am able to say that the Stomatological Club will provide club rooms for the visiting dentists, where they can have headquarters, secure mail, etc."

The following compose the committees elected for the various States:

ALABAMA.

Honorary Chairman, Jas. A. Hall, Collinsville.
Committee on Essays, H. C. Hassell, Tuscaloosa.
Committee on Clinics, T. P. Whitby, Selma.
Committee on Membership, Geo. S. Vann, Gadsden.

ARKANSAS.

Committee on Essays and Clinics, Wm. H. Buckley, Little Rock.
Committee on Membership, Charles Richardson, Fayetteville.

CONNECTICUT.

Honorary Chairman, Jas. McManns, 180 Pratt street, Hartford.
Committee on Essays, E. S. Gaylord, 1110 Chapel street, New Haven.
Committee on Clinics, Chas. McManns, 180 Pratt street, Hartford.
Committee on Membership, J. Tenny Barber, Wallingford.

DELAWARE.

Committee on Essays and Clinics, W. L. Grier, Milford.
Committee on Membership, C. R. Jeffries, 1016 Delaware avenue, Wilmington.

DISTRICT OF COLUMBIA.

Committee on Essays and Clinics, Jno. H. London, 1115 G street, N. W., Washington.
Committee on Membership, M. F. Finley, 1928 I street, N. W., Washington.

FLORIDA.

Committee on Essays and Clinics, J. E. Chase, Ocala.
Committee on Membership, W. G. Mason, Tampa.

GEORGIA.

Committee on Essays, H. H. Johnson, Macon.
Committee on Clinics and Membership, T. P. Hinman, 22½ S. Broad street, Atlanta.

THE DENTAL SUMMARY.

ILLINOIS.

Honorary Chairman, G. V. Black, Lake and Dearborn streets, Chicago.

Honorary Chairman, E. S. Talbot, 100 State street, Chicago.

Committee on Essays, J. G. Reid, 67 Wabash avenue, Chicago.

Committee on Clinics, D. M. Gallie, 100 State street, Chicago.

Committee on Membership, A. H. Peck, 92 State street, Chicago.

INDIAN TERRITORY.

Committee on Clinics, C. W. Day, Vinita.

Committee on Membership, S. E. Lang, S. McAlester.

INDIANA.

Honorary Chairman, G. E. Hunt, 131 E. Ohio street, Indianapolis.

Committee on Essays and Clinics, J. Q. Byram, 131 E. Ohio street, Indianapolis.

Committee on Membership, M. A. Mason, 130 W. Wayne street, Fort Wayne.

IOWA.

Committee on Clinics, W. R. Clack, Clear Lake.

Committee on Membership, Wm. Finn, Cedar Rapids.

KANSAS.

Honorary Chairman, A. H. Thompson, Topeka.

Committee on Essays, Frank Hetrick, Ottawa.

Committee on Clinics, Geo. A. Esterly, Lawrence.

Committee on Membership, C. B. Reed, Topeka.

KENTUCKY.

Honorary Chairman, W. E. Grant, Masonic building, Louisville.

Committee on Essays and Clinics, Max Eble, Equitable building, Louisville.

Committee on Membership, J. Richmond Wallace, 750 Third street, Louisville.

LOUISIANA.

Committee on Essays and Clinics, C. Victor Vinges, 830 Canal street, New Orleans.

Committee on Membership, Jules J. Sarrazin, 531 Canal street, New Orleans.

MAINE.

Committee on Membership, H. A. Kelly, 609 Congress street, Portland.

MARYLAND.

Honorary Chairman, B. Holly Smith, 1007 Madison street, Baltimore.

Committee on Clinics, W. G. Foster, 9 N. Frankland street, Baltimore.

Committee on Membership, C. J. Grieves, Park and Madison streets, Baltimore.

MASSACHUSETTS.

Honorary Chairman, W. E. Boardman, 184 Boylston street, Boston.
Committee on Clinics, C. W. Rodgers, 165 Harvard street, Boston.
Committee on Membership, J. W. Dowsley, 175 Fremont street, Bos-

ton

MICHIGAN.

Honorary Chairman, Geo. L. Field, Fife building, Detroit.
Committee on Clinics and Membership, Henry C. Raymond, Majestic building, Detroit.

MINNESOTA.

Honorary Chairman, E. K. Wedelstaedt, N. Y. Life building, St. Paul.
Committee on Clinics, A. C. Searl, Owatonna.
Committee on Membership, Jas. E. Weirick, 138 E. 6th street, St. Paul.

MISSISSIPPI.

Committee on Essays, W. E. Walker, Bay St. Louis.
Committee on Clinics, W. O. Talbot, Biloxi.
Committee on Membership, T. B. Wright, Coffeeville.

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Committee on Clinics, D. O. M. LeCron, New Trust building, St. Louis.
Committee on Membership, E. E. Haverstick, Boyle and Maryland, St. Louis.

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Committee on Clinics, Chas. S. Stockton, 7 Central avenue, Newark.
Committee on Membership, R. M. Sanger, East Orange.

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Honorary Chairman, Wm. Carr, 35 W. 46th street, New York City.
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Committee on Clinics, Ellison Hillyer, 472 Green avenue, Brooklyn.
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Committee on Clinics, Chas. L. Alexander, Charlotte.
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Committee on Essays, L. L. Barber, The Spitzer, Toledo.

Committee on Clinics, Henry Barnes, New England building, Cleveland.

Committee on Membership, H. C. Brown, 185 E. State street, Columbus

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Honorary Chairman, Wilbur F. Litch, 1500 Locust street, Philadelphia.

Honorary Chairman, S. H. Guilford, 1728 Chestnut street, Philadelphia.

Committee on Essays, E. C. Kirk, P. O. Box 1615, Philadelphia.

Committee on Clinics, H. B. McFadden, 3505 Hamilton avenue, Philadelphia

Committee on Membership, J. T. Lippincott, 1483 Walnut street, Philadelphia.

SOUTH CAROLINA.

Committee on Clinics and Membership, L. P. Dotterer, 102 Broad street, Charleston.

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Honorary Chairman, J. Y. Crawford, Jackson building, Nashville.

Committee on Essays, A. R. Melindy, Deaderick building, Knoxville.

Committee on Clinics, J. P. Gray, 212 N. Spruce street, Nashville.

Committee on Membership, R. Boyd Bogle, 623½ Church street, Nashville

TEXAS.

Honorary Chairman, Jno. W. David, Corsicana.

Committee on Essays, J. G. Fife, Dallas.

Committee on Clinics and Membership, M. S. Merchant, Giddings.

VIRGINIA.

Committee on Essays, L. M. Cowardin, 407 E. Main street, Richmond.

Committee on Clinics, F. W. Stiff, 600 E. Grace street, Richmond.

Committee on Membership, H. W. Campbell, Suffolk.

WISCONSIN.

Honorary Chairman, C. C. Chittenden, 21 W. Main street, Madison.

Committee on Essays and Clinics, G. V. I. Brown, 445 Milwaukee street, Milwaukee.

Committee on Membership, E. A. Gatterdam, 3rd and Main streets, La Crosse.

HAWAII.

Honorary Chairman, J. M. Whitney, Honolulu.

Committee on Clinics and Membership, M. E. Grossman, Honolulu.

CANADA.

Committee on Essays, A. E. Webster, 3 College street, Toronto.

Committee on Clinics and Membership, Edward Abbott, 13 College street, Toronto.

MEXICO.

Committee on Clinics and Membership, Jose J. Rojo, No. 2 Plateros, City of Mexico.

MISSOURI STATE DENTAL ASSOCIATION.

The Missouri State Dental Association will meet in the city of St. Louis, on May 24th, 25th, 26th, 1905. An excellent program of papers and clinics is being prepared and all ethical members of the profession are cordially invited to attend.

SAM T. BASSETT, *Corresponding Secretary.*

NORTHERN OHIO DENTAL ASSOCIATION.

The next annual meeting of this society will be held in Cleveland June 6th, 7th, 8th, 1905. A splendid program has been arranged and the coming meeting promises to be one of the best yet held. Program will be published in the May SUMMARY.

NOTICE TO OHIO DENTISTS.

The Committee of the coming Congress to be held in Portland, Oregon, at the Lewis and Clark Centennial Exposition, July 17, 18, 19, 20, 1905, desire to have each State represented by as many reputable dentists as possible. Those in Ohio who will attend and assist by giving clinic or essay are invited to write immediately to one of the Committee appointed for the State of Ohio:

Dr. L. P. Bethel, 185 East State Street, Columbus, Ohio, Chairman.

Dr. H. C. Brown, 185 East State Street, Columbus, Ohio, Committee on Membership.

Dr. Henry Barnes, New England Building, Cleveland, Committee on Clinics.

Dr. L. L. Barber, Spitzer Building, Toledo, Ohio, Committee on Essays.

Membership fee is \$5.00. Special railroad rates, \$56.00 for round trip from Chicago. It is hoped that Ohio will be well represented at this important Dental Congress. See notice of the meeting on another page of this issue.

INDIANA STATE DENTAL ASSOCIATION.

The Indiana State Dental Association will meet in Indianapolis. June 27th, 28th, 29th, at the Claypool Hotel. A special effort is being made to make this the best ever.

A. T. WHITE, *Secretary*,
New Castle, Ind.

LAKE ERIE DENTAL ASSOCIATION.

The annual meeting of the Lake Erie Dental Association will be held at Hotel Rider, Cambridge Springs, Pa., May 16th, 17th and 18th. The executive committee expects to present a program of papers and clinics of unusual excellence.

All reputable dentists are invited to meet with the Association at this famous health resort.

ANNOUNCEMENT.

The next annual meeting of the Alabama Dental Association will be held in Gadsden, Ala., on May 9th to 12th, 1905.

It is earnestly hoped and confidently expected that we will have a large attendance and the most successful meeting in the history of the association.

L. A. CRUMLY, *Secretary*,
118½ 19th Street, Birmingham, Ala.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The annual meeting of the National Association of Dental Examiners will be held at the Iroquois Hotel, Buffalo, N. Y., commencing at 10 o'clock a. m., Monday, July 24, 1905, and continuing until adjournment. The rates per day for single rooms will be \$1.50, \$2.00 and \$2.50; \$3.00 and \$4.00 for double rooms; \$3.00 to \$3.50 for rooms with bath.

The sessions will be held in commodious rooms in the hotel. Write early and secure your rooms. Arrangements for members from the east for reduced rates have already been made with fast trains on the Delaware and Lackawanna Railroad, leaving New York 10 a. m., 6:10 and 8:45 p. m., 2 a. m.

It is earnestly requested the secretaries of the Boards will communicate at once of change in members' names and addresses.

CHARLES A. MEEKER, D. D. S., *Secretary*,
29 Fulton Street, Newark, N. J.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The annual meeting of the National Association of Dental Faculties will be held at Buffalo, commencing at 2 p. m. on Thursday, July 27, 1905. The executive committee will meet at 10 a. m. same day. Special business to come before the National Association of Dental Faculties is the consideration of the proposed revision of the Constitution and By-Laws.

H. B. TILESTON, *Chairman Ex. Committee.*

JOHN I. HART, *Secretary Ex. Committee.*

KANSAS STATE DENTAL ASSOCIATION.

The thirty-fourth annual session of the Kansas Dental Association will be held in Topeka, May 18, 19 and 20, 1905. Special attention is being given to the clinical program. A cordial invitation is extended to the profession. Headquarters at Copeland Hotel.

F. O. HETRICK, *Secretary.*

Ottawa, Kansas.

THE WEST VIRGINIA STATE BOARD OF DENTAL EXAMINERS.

The West Virginia State Board of Dental Examiners will hold its annual meeting for examinations in Morgantown, W. Va., June 7th, 8th and 9th. Applications should be filed with the secretary by June 1st. Application blanks and all necessary information furnished by

H. M. VAN VOORHIS, *Secretary.*

Morgantown, W. Va.

ALUMNI ASSOCIATION, DENTAL DEPARTMENT
UNIVERSITY OF CALIFORNIA.

The annual meeting and clinics of the Alumni Association of the Dental Department of the University of California will be held at the College Infirmary, corner of Taylor and Market streets, San Francisco, on May 16th and 17th.

Assurance of a large number of clinics will guarantee a successful meeting.

All reputable legal practitioners are cordially invited to be present.

PERCY D. GASKILL, D. D. S., *Secretary.*

San Francisco, Cal.

PENNSYLVANIA STATE BOARD OF DENTAL EXAMINERS.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg, June 6-9, 1905.

For papers or further information applicants for examination must address

DR. N. C. SCHAEFFER, *Secretary Dental Council*.
Harrisburg, Penna.

TO THE DENTISTS OF OHIO.

On July 17-18-19-20, 1905, will be held in the city of Portland, Oregon, the Lewis and Clark Dental Congress. Every State has been organized and committees are appointed for carrying on the work. Ohio should be represented in this Congress, and to this end I request that any legally qualified and ethical dentist desiring or who is willing to clinic will forward his name and subject to

HENRY BARNES,
Chairman on Clinics,
1415 New England Bldg., Cleveland, O.

LEWIS AND CLARK DENTAL CONGRESS.

The Lewis and Clark Dental Congress to be held in Portland, Oregon, July 17, 18, 19, 20, 1905, promises to be the largest ever held on the Pacific coast.

The Committee on Clinics asks for voluntary clinics or table demonstrations from members of the profession and suggests that notice of the same be sent the Committee as soon as possible.

In order that the program be complete, names of clinicians and clinics must reach the chairman not later than June 15th.

G. H. NOTTAGE, *Chairman Committee on Clinics*,
Oregonian Bldg., Portland, Oregon.

F. I. SHAW, Seattle, Wash.

B. S. SCOTT, Tacoma, Wash.

A. STARK OLIVER, Spokane, Wash.

C. E. POST, San Francisco, Cal.

CLAUDE W. GATES, Salt Lake City, Utah.

J. H. HOLMES, New Westminster, B. C.

A. W. CATE, Boise, Idaho.

W. H. BARTH, Great Falls, Montana.

NEBRASKA STATE DENTAL SOCIETY.

The twenty-ninth annual meeting of the Nebraska State Dental Society will be held in the Lincoln Dental College, Lincoln, May 16, 17 and 18, 1905. The Clinic Committee promise us the best meeting in the history of the Society. All reputable members of the profession are invited to attend.

M. E. VANCE, *Secretary*.

Lincoln, Neb.

SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the South Dakota State Board of Dental Examiners will be held at Mitchell, S. D., July 11th, beginning at 1:30 p. m. All candidates will be required to do practical work in both operative and prosthetic dentistry and should bring all instruments and materials necessary to do the same. Vulcanizer, lathe, and swaging appliances will be furnished by the Board. Application together with fee of \$10.00 must positively be in the hands of the secretary before July 7th.

G. W. COLLINS.

Vermillion, S. D.

PROGRAM FRATERNAL DENTAL SOCIETY, ST. LOUIS, FOR 1905.

January 17—Second Annual Dinner at Jefferson Hotel.

February 28—"President's Address," Dr. Burton Lee Thorpe. "Asepsis as Applied to Care of Dental Instrument," Dr. S. H. Voyles.

March 21—"Lantern Lecture—The Growth of the Jaws and Teeth," Dr. Richard Summa.

April 18—"The Dental Society as an Educator," Dr. J. K. Conroy, Belleville, Ill. "Dental Irritation as a Factor in the Diseases of the Ear, Nose and Throat," Robert Barclay, A. M., M. D.

May 16—"Some Mysteries of the Mouth," Dr. Geo. H. Owen. "Prophylaxis," Dr. Edward Everett Haverstick.

June 20—"Dental Chemistry," H. L. Nickel, Ph. G.

October 17—"Porcelain Prosthesis," Dr. D. O. M. Le Cron. "The Younger Brother in the Profession," Dr. Clarence O. Simpson.

November 20-21—Lectures—Dr. E. K. Wedelstaedt, St. Paul: 1. "Cavity Preparation." 2. "Methods and Principles of Packing Gold." 3. "Methods and Principles of Finishing Fillings." Clinics: Dr. A. C. Searl, Owatonna, Minn. Clinics: Dr. James F. Wallace, Canton, Mo.

December 19—"The Gingival Margin," Dr. J. D. Patterson, Kansas City, Mo.

SOUTHERN WISCONSIN DENTAL ASSOCIATION.

The eleventh annual meeting of the Southern Wisconsin Dental Association will be held at Racine, Wis., May 30 and 31, 1905.

The profession are cordially invited to attend.

C. W. COLLVER, *Secretary*.

Clinton, Wis.

NEW JERSEY STATE BOARD OF REGISTRATION
AND EXAMINATION IN DENTISTRY.

The New Jersey State Board of Registration and Examination will hold its semi-annual examination in theoretical branches in the Assembly Chamber of the State House at Trenton, N. J., on the 11th, 12th and 13th of July. Practical prosthetic work at the office of Dr. A. Irwin, 425 Cooper street, Camden, N. J.; practical operative work, office of Charles A. Stockton, 22 Central avenue, Newark, N. J.

All applications must be in the hands of the secretary ten days prior to the examination.

Fee for examination, \$25.00.

For information, apply to the secretary,

CHARLES A. MEEKER, *Newark, N. J.*



AFTERMATH

New Dental School.—Crichton University, Omaha, Neb., have organized a dental department, with Dr. C. O. Metzler as Dean.

Dentist Bankrupt.—Dr. F. W. Warren, of Galveston, Texas, February 3rd, filed a petition in voluntary bankruptcy in the Federal court.

Dentist Shoots Promiscuously.—William LaBelle, a Holyoke dentist, West Springfield, Mass., shot his wife, her grandmother and his wife's mother.

Appointed Surgeon to State Reformatory.—Dr. G. Wilford Russell has been appointed dental surgeon to the Illinois State Reformatory at Pontiac, Ill.

Patient Bled to Death.—Wilbur McClure, of Dayton, O., age 52 years, died February 13th, from hemorrhage following the extraction of several teeth.

False Teeth in B. C. Times.—False teeth of ivory, on plates of the same material, and held in place by gold wires, were in use 1,000 years before the time of Christ.

Dr. E. B. Dawson Sentenced.—Dr. E. B. Dawson, dentist, of Forest Park, charged with assaulting several little girls at the Kelso Home, has been sentenced to serve ten years in jail.

Burglaries.—Thief raided five offices in one building in Detroit. Among the losers are: Dr. J. P. Collins, Dr. A. G. Bullock, Dr. W. W. McElroy, Dr. S. E. McDougall and Dr. H. L. Belcher.

Another Dental College.—The State Dental College, of Dallas, Tex., was incorporated February 28th, capital stock, \$30,000. Incorporators: F. B. King, Houston; L. Isaacs, Rockdale, and D. E. Morrow, Dallas.

Sandusky (O.) County Dental Association Officers.—President, Dr. H. N. Donaldson, Bellevue; vice-president, Dr. John Eberhart,

Fremont; secretary, Dr. C. H. Weeks, Clyde; treasurer, Doctor Bernard, Monroeville.

Houston Dental Association.—At the meeting of the Houston Dental Association, February 13th, the following officers were elected: President, Dr. W. D. H. Scherer; vice-president, Dr. H. T. Hamblen; secretary and treasurer, Dr. H. T. Lee.

Appointed Court Dentist.—Dr. Arthur N. Davis, a young Chicagoan, has been appointed dentist to the kaiser. Doctor Davis came to Berlin eighteen months ago as assistant to the court dentist, Doctor Sylvester, who committed suicide in January.

Home for Dental Society.—At the meeting of the St. Louis Dental Society, February 7th, the members unanimously adopted the resolution offered by Dr. M. C. Marshall, advocating the formation of a fund to defray the expenses of building a home for the society.

Dentist Honored.—Dr. George Friedrichs, of New Orleans, was the honored guest of a dinner given by the members of the profession, February 21st, the occasion being the golden anniversary of his graduation. He graduated in 1855 from the Ohio College of Dentistry.

Losses by Fire.—Doctor Swift's dental parlors, Erie, Pa., loss not estimated. Doctor McMullen, Cambridge, O., loss \$1,500; no insurance. Dr. Stephen H. Voyles, St. Louis, Mo., loss \$100. Dr. C. N. Lord, Albuquerque, N. M., loss not estimated. Dr. R. J. Kirk, Flushing, O., loss not estimated.

Dentist Shoots Himself.—Dr. John Holden, Washington, D. C., shot himself with suicidal intent, March 3rd, but may recover. Doctor Holden had been in ill health for some months, and as a result of several surgical operations he has become a physical wreck. His condition caused him to become despondent.

Suicide Left Riches.—Dr. N. W. Pence, dentist and physician, who committed suicide at Battle Creek, Mich., February 21st, at a local sanitarium, left \$20,000 in cash and certificates of deposit in New York and St. Augustine, Fla., banks. He also left a note requesting that relatives in Sidney, O., be notified.

Illinois Society Meets.—The following officers were elected at the meeting of the Illinois dentists held at Anna: Dr. G. W. Entsminger, of Carbondale, president; Dr. W. F. Willard, of Anna, vice-president; Dr. J. C. Van Ornam, of Murphysboro, secretary; Dr. J. S. Brentlinger, of Jonesboro, treasurer; Dr. J. T. Cummins, of Metropolis, librarian.

Army Dentist Sent Out.—Dental Surgeon Charles J. Long, United States Army, who reported for duty at Fort Snelling recently, has

been ordered by General Carr to proceed, with a hospital corps attendant, to the several posts in the Department of Dakota, for the performance of needed dental work on the officers and enlisted men stationed thereat.

Dentists Arrested for Practicing Without License.—Dr. John A. Bice, of Los Gatos, was arrested February 22nd, at Palo Alto, on a warrant sworn out by a member of the State Board of Dental Examiners, charged with practicing without a State license. Doctor Cameron, of Mountain View, was also arrested on the same charge. Others will be arrested.

The Iowa University Alumni Dental Clinic, held at Iowa City, closed February 8th, with the following officers elected: President, J. S. Perrin, Central City; vice-president, A. W. Starbuck, Iowa City; secretary, E. A. Rogers, Iowa City; treasurer, C. W. Work, Ottumwa. Executive council, W. A. Hosford, Iowa City; K. M. Fullerton, Cedar Falls, and R. S. Banty, of Tipton, Ia.

Chapin A. Harris Dental Society Organized.—At a meeting of the southern dentists in Memphis, Tenn., February 16th, the Chapin A. Harris Dental Society was organized, and the following officers elected: President, Dr. M. C. Marshall, of St. Louis; vice-president, Dr. B. Holly Smith, of Baltimore; recording secretary, Dr. M. D. Huff, of Atlanta; corresponding secretary, Dr. Delos Hill, of Atlanta; treasurer, Dr. H. R. Jewett, of Atlanta.

Dentists Needed in Labrador.—Miss Isabel Rogers Edgar, who was a press correspondent with the Glazier expedition of 1902, says that dentists do not flourish in lonely Labrador, yet nowhere would their services be more appreciated, for Esquimo women are valued according to their chewing capacity, for they must chew the skins from which some of the garments are made, this manipulation giving the desired dressing and pliability to the sealskin of which the boots are made.

Teeth Found in Cheek.—Two teeth far up in the cheek bone, directly beneath the eye, were discovered in a subject at the Iowa University dental clinic by Dr. G. I. V. Brown, of Milwaukee, in attendance at the annual meeting of the Alumni Association, February 10th, by the aid of X-rays, and removed by operation. The operation was performed before 200 Iowa dentists who were present and attracted a great deal of attention from the fact that it is believed to be the first case of its kind on record.

Dentist Found Ball Imbedded in Jaw Bone.—While working with the teeth of Civil War Veteran Reese, of Ottawa, Kansas, February 8th, the dentist found a minie ball weighing one ounce imbedded in his jaw bone. At Honey Hill, in 1864, Mr. Reese was struck by a

rebel bullet. It fractured his skull and tore out his right eye. The surgeon who attended him thought that the ball had passed out at the eye. Until the dentist found it Mr. Reese had no suspicion that he still carried the missile about his person.

New Dental Society Organized.—A meeting of dentists, February 9th, resulted in the organization of the Maycon-Moultrie (Ill.), Dental Society. These officers were elected: President, A. S. Waltz, Decatur; vice-president, L. Butler, of Sullivan; secretary, E. T. Evans, of Decatur; treasurer, O. T. Eddy, of Decatur; board of censors, C. R. Lawrence, of Bethany; Hugh A. Vaughn, Decatur, and D. S. Anderson, of Maroa; program committee, R. Q. Crouch, of Maroa; W. R. Adams and L. E. Coonradt, of Decatur.

Navy Insists on Good Teeth.—Reports to the Navy Department from recruiting parties at various points in the United States show that, of all the applicants for enlistment, two-thirds are rejected because of physical deficiencies. The naval requirements are for sound and healthy young men. More are rejected because of bad teeth than for any other one reason. Naval surgeons hold that a man who has lost a majority of his molars cannot properly masticate his food, and is therefore susceptible to stomach trouble and disorders of the digestive organs.

The Southern Branch of the National Dental Association, February 24th, elected the following officers: President, Dr. W. G. Mason, of Tampa, Fla.; first vice-president, Dr. N. N. Van, of Atalla, Fla.; second vice-president, Dr. R. Cowardin, of Richmond, Va.; corresponding secretary, Dr. J. A. Gorman, of Asheville, N. C.; recording secretary, Dr. John R. Beach, of Clarksville, Tenn.; treasurer, Dr. B. D. Brabson, of Clarksville, Tenn. A resolution requesting the National Association to hold its meeting next year in Birmingham, Ala., was unanimously adopted.

Dentist Is Fined.—Thomas B. Brady, the Fall River, Mass., dentist arrested February 3rd for practicing without being registered, was fined \$75. Dr. James A. Donnolly, also of Fall River, a witness, for whom the defendant worked, testified that he was not registered, but there was no thought of violating the laws. As soon as he concluded his testimony, Doctor Donnolly was placed under arrest for not having on exhibition in the office a certificate, or his name posted. This case was not pressed at the request of the attorney for the prosecution, the defendant stating that there would be immediate compliance with the laws.

To Be No Rupture Between Southern Branch and National Dental Association.—There will be no rupture, for the present at least, between the southern branch of the National Dental Association and the main body. This conclusion was reached at a session of the

southern branch in convention at Memphis, February 21st, when the committee appointed to take under advisement the recommendations of President Alexander, made to insure unity, reported favorably on his suggestions and urged the adoption of the president's idea to adhere to the National Association and to redistrict the southern organization into three branches, to be known as the eastern, middle and western divisions.

Decides for Dentists' License.—That portion of the statute of 1901 regulating the practice of dentistry, which requires a license from the State Board of Dental Examiners as a prerequisite to "owning, running or managing" a dental office, is unconstitutional, according to an opinion of the Supreme Court filed in the case of State of Washington, respondent, vs. Edwin J. Brown, appellant. The opinion of the court in this case should be distinguished from an opinion filed December 22, 1904, in the case of Smith vs. the Board of Dental Examiners. The opinion in the Smith case sustains the statutory requirement for licensing the "practice of dentistry," and the opinion filed to-day affects only that portion relating to the owning, running or managing of a dental business. The court says: "We are unable to say or perceive that the health, moral or physical welfare of the public or any of the personal or property rights of its individuals are endangered by the ownership and management of a dental office, so long as those employed therein to do the actual dentistry work are qualified and licensed, as by law required."

Deceased.—Dr. Lester Noble, dentist in Boston, Mass., died February 22nd, aged 86 years. Dr. George Cheadle, Lebanon, O.; killed by falling structure, February 17th, age 35 years. Dr. James T. Irwin, retired dentist of Cincinnati, O., died February 21st, of paralysis, age 72 years. Dr. James Leslie, Cincinnati, O., died February 8th, age 86 years. Dr. A. B. Hartman, Rising Sun, O., died February 8th, from heart failure. Dr. Irving Prescott Eddy, of Providence, R. I., died February 8th. Dr. W. S. Andrews, of Coldwater, Mich., dentist and musical leader, died February 12th. Dr. Frank E. Milliken, of Oswego, N. Y., died February 19th, of Bright's disease, age 50 years. Dr. John R. Frailey, of Philadelphia, died February 22nd, age 68 years. Dr. Louis M. Griffis, of Hamilton, died February 8th, age 69 years. Dr. Edward Lewis, of Dover, Del., February 1st, age 32 years. Dr. A. B. Harryman, of Rising Sun, Ind., died February 5th, of heart failure, age 65 years. Dr. W. K. Harlan, of Danville, Ind., died February 17th, at San Antonio, Tex., where he had gone for his health, age 29 years. Dr. Wm. W. Wilson, of Baltimore, Md., died February 3rd, aged 78 years. Doctor Irwin, of Kansas, died February 12th. Dr. Alexander C. Elliott, formerly a practicing dentist of Poland, O., and wife, were found dead at their home in Pittsburg, Pa., February 9th. Escaping gas is thought to have been the cause. Doctor Elliott was 73 years of age.

Recent Patents of Interest to Dentists.—

- 780919—Dentometer, Ned Shockley, Farragut, Iowa.
 782627—Dental plate, Herbert J. Tarr, Jr., Chicago, Ill.
 781292—Mouth-brush, James M. Murphee, Dothan, Ala.
 781876—Abrading disk, Frederick N. Gardner, Beloit, Ws.
 781277—Tooth-crown holder, Charles W. Fahey, Chicago, Ill.
 781313—Dental-disk package, Jacob A. Thomas, Hanover, Pa.
 781617—Dental-disk carrier, Otto B. Price, Moncton, Canada.
 781420—Artificial tooth, John R. Haldeman, Kansas City, Mo.
 781587—Rubber disk for dental use, Joseph E. Blake, Amesbury, Mass.
 781762—Electrical dental furnace, Luther L. Bosworth, Cleveland, O.
 780146—Dental instrument, Amos A. Wilcox and M. Jewett, Cleveland, O.
 780147—Dental instrument, Amos A. Wilcox and M. Jewett, Cleveland, O.
 780589—Dental automatic plugger, Alexander A. Wimmer, Chicago, Ill.

Justice to Dr. George H. Watson.—On the occasion of the suicide of Dr. A. H. Sylvester, of Berlin, Germany, comments were made in the public press regarding the withdrawal of Dr. George H. Watson from Doctor Sylvester's practice, which was calculated to work an injustice on Doctor Watson. Accordingly the following statement, which speaks for itself, was published in the *German Times*, of Berlin:

A PROTEST BY AMERICAN DENTISTS IN BERLIN.

We, the undersigned American dentists in Berlin, respectfully present the following urgent protest against a notice in the last number of the *German Times* (January 16th), in which statements are made which are well calculated to injure the name of a member of the American Colony who is most highly esteemed not only as a skilful practitioner of dentistry but as a man of unwavering integrity of character. Having examined into the business relations of this gentleman with the deceased Doctor Sylvester, we are absolutely convinced that he not only most conscientiously and scrupulously lived up to the terms of the contract which existed between him and the deceased, but still more that he evinced a charity in his dealings far beyond that which could have been legally exacted and which has evoked our undivided admiration.

We herewith express our unreserved confidence in the gentleman in question and our strong disapproval of all attempts to make him in any way responsible for a deplorable event over which he had no control.

Berlin, January 19, 1905

W. D. MILLER.

GEO. O. WEBSTER.

E. LAWLEY-YORK.

CHARLES H. ABBOT.

GEORGE MARTIN.

GEORGE A. KENNEDY.

FERD. FOERSTER.

J. H. RAMSEY.

LEE A. WATLING.

E. D. BARROWS.

REGULAR CONTRIBUTIONS

RETENTION OF ARTIFICIAL DENTURES.

BY GEORGE H. WILSON, D. D. S., CLEVELAND, OHIO.

SECOND PAPER.

In the first paper in this series, published in the September, 1904 number of *THE DENTAL SUMMARY*, the subject of impressions was presented. The statement was made that "Plaster is the only material with which a perfect impression can be taken; and just in the ratio to the difficulties of the case, it is necessary to have a plaster impression." Also a method for taking impressions was described.

Should the impression be broken in removing from the mouth, which usually happens in partial and sometimes in full cases, the portions should be nicely adjusted and secured in place by melted wax and the impression be permitted to stand for fifteen or twenty minutes, or until it becomes hard and dry, when it is coated with a separating fluid. This part of the operation like every other portion is very important and must be intelligently done. The object is to give a smooth and glazed surface without an appreciable thickness being added to the impression, or a material that will attach itself to the cast which is to be formed.

The best results are obtained by coating the maxillary surface of the impression with a solution of shellac (three ounces of gum to a pint of alcohol). This varnish will penetrate the plaster of the impression, partially fill the pores and make a good line of demarcation to aid in cutting away the impression from the cast. In two or three minutes the shellaced surface is varnished with a solution of sandarac (three ounces to the pint of alcohol). Should the impression not have a well-glazed surface, in five minutes it should be given another coat of sandarac.

If either the shellac or sandarac becomes too thick from exposure to the atmosphere, alcohol should be added until the required consistency is produced. The varnished surface is then moistened with water to facilitate the flowing of the plaster in filling the impression. The impression is filled with a suitably mixed plaster or a compound of plaster, and then placed, plaster side down upon a smooth surface.

There are several features of this description of forming a cast that require special consideration.

The purpose for which the cast is designed will determine the material with which it is to be made. Casts may be considered as belonging to three classes: First, those which will not be subjected to compression; second, those which will be subjected to compression, and third, those to withstand heat. The first class includes those casts used to form models for dies, orthodontia exhibits and similar uses. These casts should be formed of a material that is fine grained, forms a smooth surface and as free from expansion or contraction as possible. French's regular dental plaster has proven the most satisfactory. Two measures of plaster to one of water and stirred only until a smooth mix is obtained; a portion is then placed upon an elevated part of the impression and by jarring, caused to settle into all the depressions, the body of the cast is then built to the required form.

The second class is designed for vulcanite and celluloid work. For this purpose many dentists have used a coarsely-ground slow-setting plaster. Most of these plasters expand more than French's regular dental plaster, but are somewhat less compressible. The best material with which to form these casts is Spence's plaster compound. This compound contains plaster and Portland cement and probably other materials. It is slow-setting and requires three and a quarter, to three and a half measures of the compound, to one measure of water and very hard spatulation and kneading to make a proper mix. When properly mixed it is of the consistency of stiff putty and is best packed into the impression with the fingers. As the compound does not form a very smooth surface, it is better to line the impression with a thin layer of French's plaster. This can easily be done as the Spence compound is so slow setting that there is ample time after preparing it to mix and place the French's plaster, after which the Spence compound is packed into it.

Spence's compound requires about two hours to reach its maximum hardness; it then has four to six times the resistance of ordinary plaster. The material is somewhat softened by the vulcanization process, but only in a slight degree compared with plaster. It seems to be practically non-expanding. The writer is confident that too much stress has been laid upon the expansion of plaster as an explanation for the warpage of vulcanite dentures. He is satisfied that the warpage is due to the compressibility of the cast and as the result of too great and uneven pressure used in packing the case.

The third class consists of those casts used for cast-metal bases. Plaster is a very poor conductor of heat, also shrinks badly and unevenly when subjected to a high temperature; therefore, it is necessary to incorporate with the plaster such substances as will overcome these properties. Marble dust or sand very well accomplishes these requirements. They should be mixed in the ratio of two-fifths plaster and three-fifths marble dust or sand. These mixtures will require much less water to produce the proper consistency than pure plaster. There are many investing compounds upon the market, some of which are very excellent for making this class of casts. Because of the comparatively small portion of plaster contained in these mixtures, they should be mixed somewhat stiffer than the pure plaster.

Casts for partial cases of the second class may have the teeth strengthened by inserting into the soft Spence compound, three-fourth inch brads. This is especially desirable for those teeth upon which clasps are to be formed.

Undoubtedly there is a proper ratio between the water and plaster to obtain the maximum strength and permanency of form, also stirring after the crystallization begins, causes expansion and probably decreases the strength.

The operator should thoroughly appreciate the amount of compressive force the brand of plaster he is using will resist; also the power of the screw with which he closes the flask.

French's regular dental plaster will show an appreciable compression when two hundred and fifty pounds are placed upon a circular surface one-half inch in diameter, or a surface equal to the occlusal surface of a molar tooth, and one thousand pounds will compress the plaster about one-thirty-second part of an inch. When we consider that five or six thousand pounds may

be unevenly applied upon the surface of a denture while closing the flask, it is easy to recognize why many vulcanite dentures are warped so that they rock, or the teeth are too long upon one side and require grinding.

The pressure that is being used in closing the flask can be very easily estimated, because the screw is a combination of the wedge and lever, and its power is found by multiplying the circumference described by the lever by the pitch of the screw and subtracting one-fifth for friction, which will be a very liberal allowance. Thus, if one pound of power is applied to the lever four inches from the center of the screw, the circumference would be twenty-five plus inches, which is multiplied by the pitch of the screw. There will probably be ten threads to the inch or one-tenth pitch, after deducting one-fifth for friction we will have two hundred pounds of force for each pound of power.

It must be apparent to all that a perfect impression and a properly-constructed cast intelligently used are absolutely essential to the retention of an artificial denture.

THE INLAY CROWN.

BY W. J. MUMMERY, D. D. S., MILFORD, MICHIGAN.

There are two things that are attracting the attention of many of the foremost men of our profession today, namely, porcelain inlays and the porcelain-jacket crown.

I have been particularly interested of late developing what I call an inlay-crown.

The past five to eight years have brought about great changes in our inlay and crown-work. But while our present methods of crown-work are far better than they were a few years ago, I do not see that by any of the improved methods are we enabled to save roots of teeth to former usefulness that we could not have saved five to eight years ago.

We are all grateful for the improved methods, for we are enabled by them to do our crown-work far easier, producing far more artistic crowns than was possible by the previous methods.

My aim has always been to fill a tooth as long as filling would restore that tooth to usefulness and approximate nature in appearance.

When the tooth was too far gone to be restored by filling I have attempted to crown the root deprived of its natural crown, feeling that it was far better to crown the root than to extract and insert a bridge or a plate to take the place of the tooth lost.

I feel that far too many roots that could just as well be preserved to usefulness and beauty, are extracted for want of knowledge of methods for crowning such roots.

How often have we extracted roots and cut away good adjoining teeth for abutments for bridge-work, when by careful manipulation we could have crowned the roots giving far better results both in appearance and usefulness and saved the adjoining teeth in their natural condition.

My efforts to crown roots of teeth that apparently were beyond restoration, preferring to take some chances in regard to permanent results rather than to extract and cut away perfect teeth for abutment for bridge-work, have developed the following methods and form of crowns.

Before explaining what I have been pleased to call the inlay-crown I will briefly explain my method of producing a post that will accurately fit the hole in a root to be crowned. Where the canal has been considerably enlarged by caries or where it has been necessary to enlarge the canal in some one certain direction in order to make it possible to bring post of crown in proper relation with root, I prefer to use a ready-made crown with detachable post, this method being particularly adapted to them.

The root is first properly prepared (Fig. 1), a piece of platinum foil one-one-thousandth is cut to proper size and shape to make a cone that will slip into the hole in the root, the cone being swaged to accurately fit the hole by means of cotton cones being forced into it.

The base of the platinum cone should extend a little beyond the face of the root to allow for lapping the platinum foil over the face of the root to secure perfect adaptation of foil to margin of hole. The cotton is then removed, the crown can also be removed at this time and soldered if so desired. With this matrix in place in the root, force the post and crown—having been previously fitted to the root—to place, using a little wax on the post to cause it to adhere to the matrix.

The post should extend through the matrix to assure post and matrix being held in proper relation in the investment.

Remove from the root and invest, wash out all wax and fill the matrix with post in place with gold solder. You now have a post that will accurately fit the hole in the root. (Fig. 2.)

It will be found that a post thus prepared not only adds greatly to the strength and cleanliness of the completed crown, but serves as a perfect guide in the final setting of the crown. How many of us after carefully grinding a crown to fit a root, shaping the base of the crown exactly the same shape and circumference of the root, have found after the final setting that our crown overlaps the root margin at one point leaving the margin of the root exposed at the opposite aspect, producing a lodging place for food and a sharp overhanging margin to irritate the gum tissue.

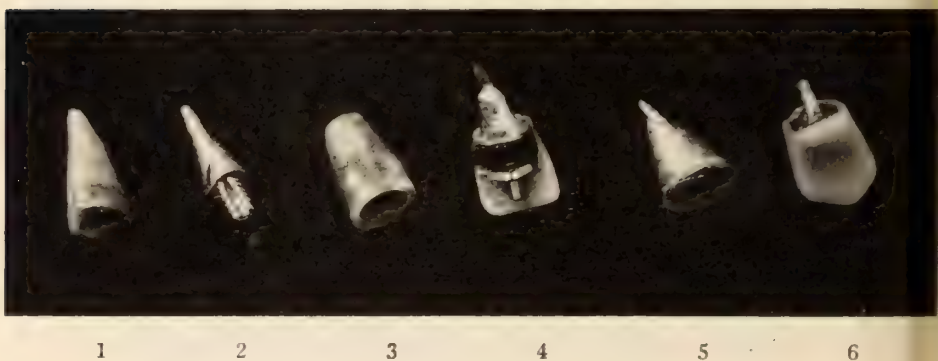


Fig. 1—Preparation of root.

Fig. 2—Cone and post ready for crown.

Fig. 3—Root to be crowned.

Fig. 4—Cone and pin with facing attached ready to solder.

Fig. 5—Tube extending through matrix cone.

Fig. 6—Crown to fit tubed root.

We will now take up the description of the inlay-crown.

We have a root presented to us for crowning, or more frequently for extraction.

On examination we find a root badly decayed and broken away below the gum margin. In fact the root is a mere shell, the dentine having been very extensively removed by decay, leaving a cup-shaped hole in the root, with thin frail margins. The decay having extended fully half the length of the root. It is certainly difficult if not impossible to band such a root.

Prepare your root by removing all decay, leaving the walls of the cavity as smooth as possible. (Fig. 3) Form a suitable cone or platinum foil large enough to extend considerably beyond the face of the root, swage to perfectly fit the walls of cavity, trim off excess of platinum, allowing enough to form a slight flange over the edges of root wherever possible to bur-nish, to assure a perfect fit to all borders of cavity, remove ma-trix and solder.

Drill hole as deep in root as safe to receive post. With matrix in place, force post through matrix as far as possible, secure post to matrix, with wax, remove, invest and solder.

If a facing is to be used, grind to place with post and matrix in place, properly adjust facing and attach to post by means of pins (Fig. 4) and solder. Remove all together, filling in matrix and building up back of facing with porcelain body and fusing as judgment of operator sees best.

The entire tooth may be built up and carved from porcelain body if desired. Remove matrix and your crown is ready to set.

This form of crown can be made, by those operators not familiar with porcelain work, by simply backing the facing with gold before attaching to post, remove, invest matrix, post and fac-ing all together and fill in matrix and back of tooth with gold solder.

If the operator desires to use a ready-made crown such as a Justi or Davis, he may make what we would call an inlay post, using a tube in the place of the post extending through the matrix. (Fig. 5.) The tube being just large enough to re-ceive the post proper of the crown. (Fig. 6.) The tube, post and matrix being properly adjusted, they are invested, filling the tube with investment also to prevent solder flowing in the tube. Fill the matrix around the tube with gold solder. Grind a smooth even face on the inlay post and cement to place in root. When set, grind your Davis or Justi crown to fit as in any ordi-nary case and set.

I have crowned roots by this method when the labial por-tion of the root has been broken away three-eighths of an inch above the gum line and thus far the cases have given no annoy-ance.



TO MAKE PORCELAIN FRONT CROWN AT ONE SITTING.

BY A. E. WEAVER, D. D. S., BOISE, IDAHO.

After the tooth is ground as for any porcelain crown, level the anterior and posterior portion of root quite a little. Fit post of any desired material, allowing it to project at least one-quarter of an inch out of canal. Take platinum, 36-gauge, and burnish over root, turning down edge so it will extend one-sixteenth of an inch under margin of gum at palatine portion of root, gradually tapering to point at labial portion in form of a scoop. Perforate this with post, by pushing through to position it is to occupy. Remove both together and tack with 22k. solder.

Replace in mouth, grind facing to fit, both as to adaptation and occlusion, then back with platinum or pure gold and retain in position by slitting (not bending) pins with a knife. Place in position so pins will rest one on each side of post.

Take black wax (such as dealers card teeth on) and press firmly around post, pins and against backing. After cooling with jet of water from mouth-syringe, the whole may be removed without danger of displacement.

Invest in pumice one part, plaster two parts, add small pinch of salt to aid quick setting, remove wax by using boiling water, place on flame and in five minutes solder. This crown can be made in thirty minutes with ease, does not necessitate a large expenditure to keep good selection, is perfect in adaptation and occlusion, is strong, durable and secure. If one used, busy practitioners will discard manufactured crowns, keeping instead a supply of facings.

A PLEA FOR THE CONSERVATIVE.

BY DR. C. F. RODGERS, CONNEAUT, OHIO.

Whether or not the dental profession is more rabid than others, or whether I simply see and hear more of it, I cannot say, but it seems to me that the time has come for a reform.

The advances in the last few years have been so rapid and the improvements in methods and apparatus so many that one may almost expect the heretofore impossible.

I have often wondered what were the thoughts of a dental student or a newly-graduated man when he reads the reports of the dental conventions and sees the diversity of opinions that are expressed there.

One man advocates pressure anesthesia; says he has success without number; another says that there is "nothing in it," that he has no success.

One man removes the pulp alive, immediately fills the canal, and rarely has any trouble; the other prefers to kill his first and deal with dead matter, as has been done for years, because he was taught that way years ago.

He has had no success with the new method and as he may hold a good reputation, his word *should* be of some weight.

Which is apt to be right, the one who removes pulps by the dozen and painlessly, or the one who has tried and failed?

Because a man places his hands before his eyes and says the sun does not shine, does that make it so?

In another place I read that it is imperative that cuts should be made in porcelain fillings and undercuts in the cavity or the filling will fall out. Another man says that no undercuts are needed.

Did any one ever see a cement filling "drop out" that had been inserted properly?

Did any one ever drill out a cement filling and see how it sticks to the tooth?

A man who has a most successful practice and who has the blessings of hundreds of patients for his efforts in true painless dentistry, says that painless dentistry is possible and although he proves his successes, others laugh at him. One man says that he has had many cases where it had been impossible for him to be sure that all the pulp is removed, he is honest and does not "always remove every vestige of the pulp." What does he do? One of the most terrible and shiftless things—he mummifies it—and saves the tooth.

Yet other men will hold up their hands in "holy horror" at such a proceeding, and on the quiet ask for the formula used.

It was not so many years ago that the profession had the same experience with local anesthetics. I remember at one society meeting there was read a paper on dental ethics in which the essayist took special pains to condemn anything of the kind; nostrum or not; it was unprofessional to "extract teeth with

pain." I incidentally mentioned in some remarks that I had had one of the most-widely advertised of these analyzed; after the meeting the exponent of dental ethics buttonholed me and wanted me to give him the formula, as a man near him was using something and he wanted to compete with him, but I was not to tell any one!

Many dentists went so far as to tell patients that such a thing as extracting a tooth painlessly could not be done.

There will soon be man after man telling us that the forcing of cocaine through the tubuli is an impossibility.

Now, to sum up: Where are we at? If one man can accomplish these things and another not, which is right? It seems to me that the expression of an old colored "mammy" would be applicable in this case: "Keep you mouth shut honnie, you show you ignorance."

When a man comes before us with a new method, let us welcome him and his method; we may be using it in a few years in our every-day practice. If we are not sure that it is good, do not condemn it until we *know* that it is bad.

Let us get over being so rabid. Let us be prepared for all the good things to come. Just get it in our minds that if we cannot be successful at pressure anesthesia, that it is our own fault. If we cannot make a porcelain filling stay in without deep undercuts, it is our own fault.

But they say that "history repeats itself," and I presume that as long as the profession lasts there will be "knockers" at anything new.

Some of us are so conceited that we hate to acknowledge that there is anything good outside of our own little sphere. Why, my dear brethren, new things will come up under your very nose and will be adopted by the profession, and will continue to do so long after you are buried and eaten by the worms, and your "knocking" will be remembered just about as long as it should, while the names of these men who are working for the good of the profession and of their patients, will go down to posterity. Don't "knock."



OCCLUSION AND MALOCCLUSION.*

BY VARNEY E. BARNES, D. D. S., CLEVELAND, OHIO.

The object of this paper and its illustrations, is to contrast the evils of regulation, associated with extraction, or noneruption of teeth, with correct occlusions and the results of regulation without extraction.



Perfect permanent and temporary occlusions, 15 years and 5 years. Note the great similarity in size and shape, also the normal separation in the temporary set.

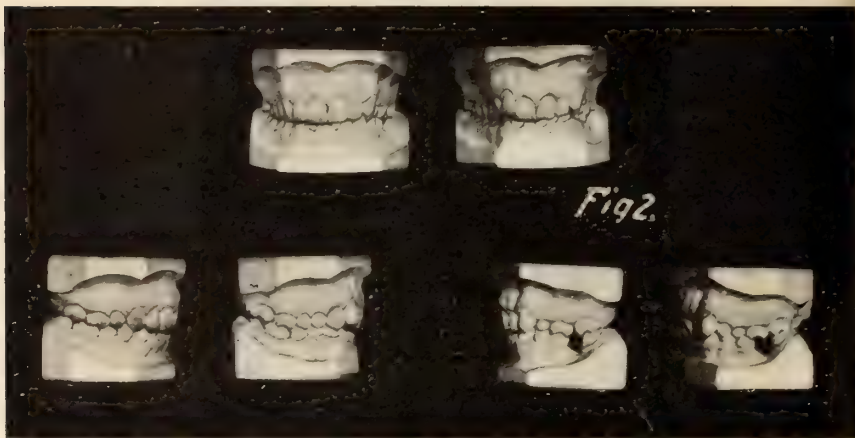
Occlusion may be defined as the normal antagonism of a normal number of upper and lower teeth, with the jaws closed.

*Read before the Northern Ohio Dental Society, June, 1904.

With this occlusion there is harmony of feature for the race of the individual.

Malocclusion is the imperfect antagonism of the upper and lower teeth, on closure.

Perfect occlusion affords the greatest possible surface and advantage for the proper mastication of food. (Fig. 1.) How many of us really understand what a perfect occlusion is? We may think we do, but seriously, do we? Can we recognize it, or its absence? Are we not looking too much at the individual tooth, and not noting, as we should, the teeth in their relation to one another? Do we not forget that one depends upon the other, and that saving one tooth, saves all? Let us not forget that only four teeth antagonize but one tooth occlusally, and that



Regulation with extraction of upper first bicuspid. Note that bicuspid occlusion is better *before* regulation than *after*. The lower arch was not touched. It would have been better to have expanded both arches. Patient 25 years of age.

these four and all others depend very largely upon the others for their positions in the arch.

If even one tooth be lost, all the teeth in both jaws are surely affected in time. All of us are aware of this, and yet we do not seem to realize that the malposition of but one tooth may be only an indication of a less evident malposition of all the teeth.

In occlusion, one tooth supports and harmonizes with the

others and cusps and incisive edges prove most effective, while in malocclusion there is inharmony, less support and invitation to caries and gum diseases. Ugliness and inharmony of features is a close relative of malocclusion.

These facial deformities may be cured or greatly benefited by the restoration of occlusion, possible exception being strong facial types. In this connection, the refinement of this type of faces should properly be called facial orthopedia and is distinctly different from orthodontia, which is the science of the



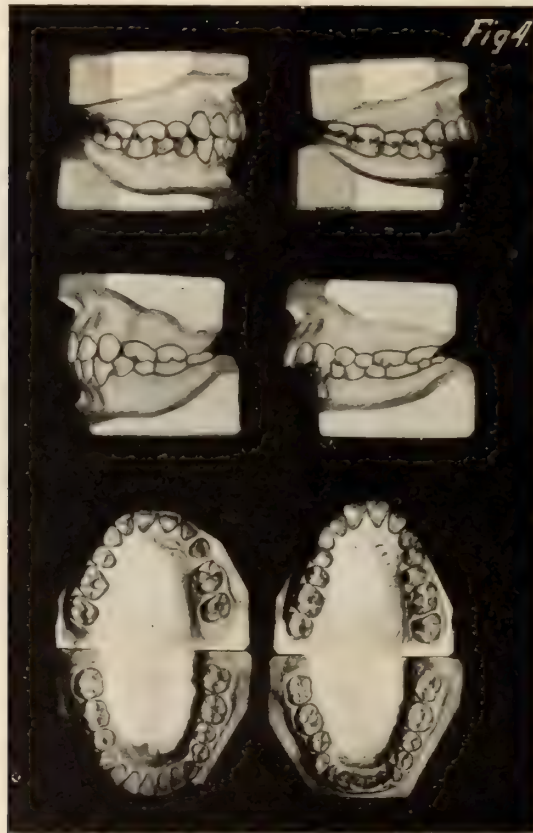
Regulation without extraction. Note occlusion of bicuspid and molars. (In the completed case the teeth are not fully settled, as appliances were just removed. They later settled correctly.) Patient 15 years old.

restoration of occlusion. True, the orthodontist may extend his field to take in facial orthopedia, but facial orthopedia, of itself, is too often associated with extraction and as such cannot be always orthodontia.

Today we are still confronted with failure in diagnosis of cases in orthodontia, and even when there is a correct diagnosis, too often there is a compromise, so-called. Both jaws are not considered, and teeth are extracted to *save expense, time, trouble, to please the patient*, and incidentally to *switch into the pockets of the operator, a few extra dollars that might be lost were the case treated as it should be. Ah! the pity of it!*

Every tooth was designed for but one place and there only

will it fit and give the best service. Is a first bicuspid the same size and shape as a second? or a first molar similarly cusped as the second or third? Does an upper lateral occupy the same amount of space as a lower incisor? One would think so from the policy of extraction still advocated by many of our teachers, at our societies, and in our literature. The writer's first instruc-



Results of so-called conservative extraction. Three upper bicuspids were extracted. Facial outlines improved but not refined as they would have been without extraction. Patient 14 years old.

tion in orthodontia was along the line of so-called conservative extraction, which as you all know means the loss of more teeth than the word "*conservative*" should indicate. The first two

years, out of five, devoted to the practice of orthodontia as a specialty, developed enough cases to set him to thinking, especially when close observation revealed that, whenever a tooth was lost, correct occlusion never appeared unless that tooth-

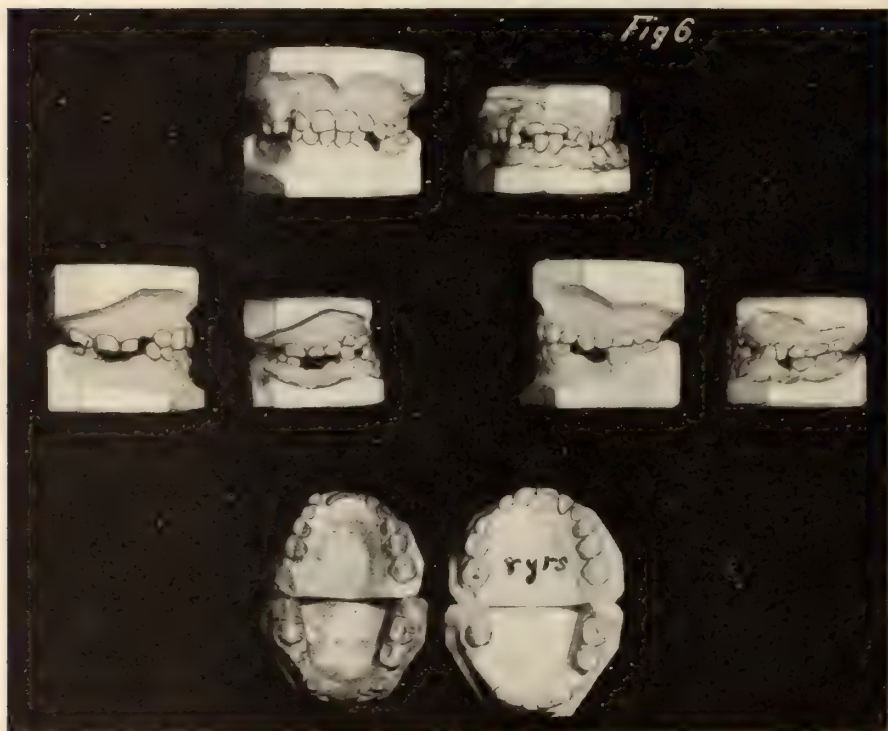


No extraction. Contrast these results with Fig. 4. Compare the molar and bicuspid occlusion. Patient 15 years old.

space were restored and the missing tooth supplied. (Fig. 2 and Fig 3; Fig. 4 and Fig. 5.) The last two years have been passed with no extractions whatever and with far better results than formerly with them.

There may possibly be cases in the future that will require the loss of teeth *but correction without extraction must first be proven a failure*, then, and then only are we justified in using such radical treatment.

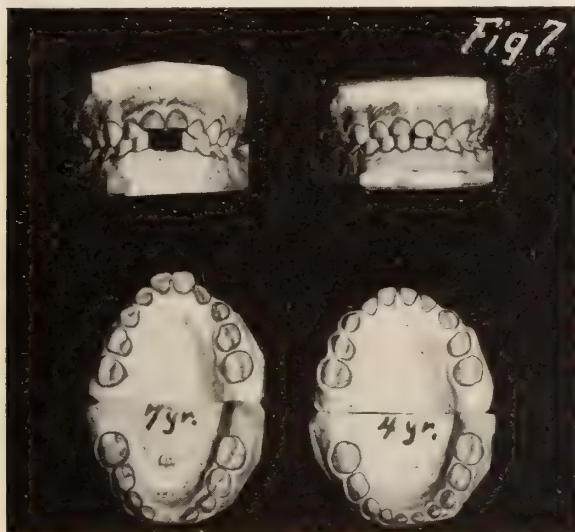
The question naturally arises: What shall be done with those cases of malocclusion in which teeth have been lost through caries, accident or bad dentistry or where they have never formed? In the first three of these causes a restoration of normal occlusion with the missing teeth artificially supplied, is the only, and best method. Where teeth do not form the space may occasionally be closed in a measure, but in most cases the missing teeth must be replaced after regulation. How shall those lost



Premature loss of temporary teeth. Note the restoration to normal size arch and molar occlusion. Patient 8 years old.

pearls be replaced? By the finest kind of bridge-work, the creation of the specialist. Let it not be understood that this is advocated for the very young, it is not. The space may be restored and then maintained by temporary retainers until the patient is seventeen or eighteen years old, when the jaws and teeth are

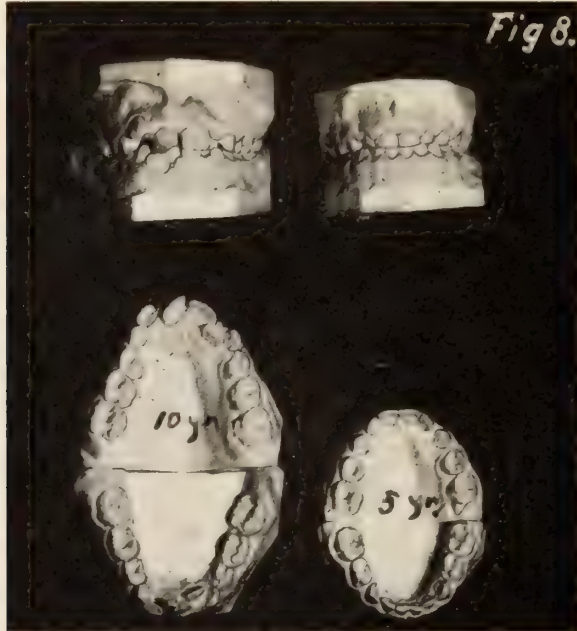
more nearly mature. You say that such restoration by means of bridge-work is an evil. True it is, but in most cases will it not be *a far less evil than that resulting from malocclusion?* The writer believes so, not because he wants to, but because there seems to be no better solution of a difficult question.



Left.—Patient 7 years old. History of malnutrition and slow growth. Compare this arch with sister's on right, 4 years old, of normal development. The first will have malocclusion. The second will not.

A correct and early diagnosis of malocclusion in patients of from three to five years, and *treatment begun as early as five years* will in many cases avert and prevent serious cases, that in later years would prove most difficult to treat with perfect success. (Figs. 6, 7, 8.) The observation of the writer has been that the most serious cases of malocclusion are clearly indicated in the temporary teeth, may be diagnosed as early as three years, and are far more frequent than the dental profession supposes. Watch these little ones and prevent growing deformities. *Don't wait until the permanent teeth erupt* and the mischief is done, if there is not room for erupting teeth in a too-

slowly growing jaw, make room and see how nature will help out. Remember, that the highest aims of the dentist are to restore, preserve and beautify the teeth of his patients.



Sisters 10 years and 5 years old: Left, anemic, adenoids and great irregularity. Right, slow growth, adenoids and destined to have same irregularity, but regulation is permitting perfect eruption of permanent teeth.

EXTENSION AND PREPARATION OF CAVITY MARGINS.*

BY DR. J. W. EGGLESTON, RICHMOND, VIRGINIA.

Many years ago, but not so many that some of you here present cannot remember it, a book was published by a celebrated dental author in which was advocated the separation of all teeth, making V-shaped spaces on the lingual aspect, to prevent interproximal caries.

*Read before the Virginia State Dental Society, August, 1904.

Not only was this advocated, but it was largely endorsed right here in Virginia. The argument was that while nature's arrangement of the teeth was the ideal one for primitive man, civilization made necessary self-cleansing spaces or ruin stared the teeth of our patients in the face.

To what extent this ruinous and well-nigh criminal practice was carried as to normal, sound teeth, I am not prepared to say. Perhaps many of the elderly people now wearing rubber plates think they are doing so not because of this filing but in spite of it. Certain it is that many of us can remember when every approximal cavity was prepared by first making a V-shaped space and that *with a file*. This was not done to prevent recurrent caries, but because it was absolutely necessary in order to have a four-walled cavity to fill with foil. I myself was for years tortured by the packing of food into these spaces made by one of the very best operators in the State.

It was even advocated to leave shoulders at the bottom of such spaces in the vain hope that they would arrest the packed food before it reached the sensitive gingival space. This practice was a survival from the days when all good operators used non-cohesive foil or tin-foil as their only filling materials, and of course were obliged to keep all cavities simple ones. A tooth so far gone as to render the cavity a compound one was either filled until the cavity was a simple one or deemed hopeless and condemned to the forceps. Many bicuspid were reduced to thin blades so as to render filling possible. As cohesive gold came into favor, the filling of compound cavities became possible, and then began a mania for contours. The matrix was devised and the result was that compound molar and bicuspid cavities were filled in vast numbers without due care as to cervical margins or buccal and lingual angles. Soon the journals were flooded with articles discussing the probable cause of the all-too-frequent recurrence of decay. Some attributed it to one cause and some to another. Many of the older practitioners laid it all at the door of the peculiar properties of cohesive gold. Tin-foil, non-cohesive gold, gutta-percha and even the long-abused amalgam were recommended as foundations on which to build. Electrolysis was even discussed as a probable cause and the question largely debated as to what filling materials were positive and what negative to vital electricity.

You younger men no doubt think your lot a hard one, in that scientific research has found out so much for you to learn, and you are right. But just think how much now disproved and well-nigh forgotten science we older fellows have had to learn and then unlearn. At last careful study and experimentation demonstrated that cavities opened on morsal surfaces were risky unless bucco-lingual walls were carefully cut away to a proper and rational extent. Some able men ran this in the ground until "extension for prevention," as it was called, came to mean the removal of almost the whole crown and a ghastly show of gold wherever the teeth were visible. Together with this was coupled the matter of the proper preparation of cavity margins, largely because under this system they were so uniformly visible. Like all fads, this hobby was ridden to death and dropped into oblivion simply because the dental profession was weary of it.

My object in this paper is to call your attention to the fact that perhaps the pedulum has swung too far and we are losing sight of a very important part of our duty. The microscope shows us that the ravages of caries does not stop where discoloration or even palpable softening from acid action ends. It is never safe to leave enamel rods which are unsupported by dentine except in those exceptional conditions and localities which I will not stop here to discuss. In the very first steps in preparing an interproximal cavity, all suspected enamel should be cut freely away. Particularly should this be attended to buccolingually. The seat of every such cavity should almost always be carried down below the free margin of soft tissue. Even when this is done careful inspection of the dentine at the most inaccessible points is most important. If it is not absolutely hard and sound, the enamel over it should be cut away and the excavation extended. Sometimes this will look like sacrificing good tooth structure, but certain it is that the operator who does this conscientiously is laying a broad and deep foundation for professional success.

On the other hand I do not think that radicalism in this particular is good judgment. If the dentine is not softened by acid and the enamel has not had its cement substance impaired, it is not necessary to draw a line and extend your excavation to a point laid down as the geographically and anatomically correct one by some writer who knows it all. True, the anatomy of

enamel should be carefully studied, for all enamel rods are not of the same length nor lying in the same direction. Each cavity must be treated on its own merits, but be sure you do not err in the direction of not sufficiently extending your cavity margins. I am convinced that this is the commonest error in everyday practice. I do not claim that I never make the same error myself. In fact, I know that I do and that is why I have written this paper. Knowing the importance of proper extension, and so often finding that I have fallen short of it, shows me the necessity of keeping the subject before the profession. Proper attention to this extension naturally suggests the subject of what to do with the margins of the cavity.

I shall not weary you with text-book details of the anatomical or mechanical reasons for certain measures, but briefly remind you that care should be taken to see that all cavity margins are so shaped that, without leaving their feather edges of filling material, all cut enamel rods shall be covered with the filling and that all margins are beveled but not rounded and that there are no angles or corners left. I would not even mention the subject but that I see so much otherwise good work thrown away by imperfectly prepared enamel margins.

Take the two allied subjects home to your chairs and study the filled teeth you see and if you have not been thinking deeply along these lines of late I am very sure you will be surprised. You will see neglect in all the degrees from cases where a little more attention to these two things would have well-nigh reached perfection, to those where an ignoramus has put in cement or amalgam under unsupported enamel and that without removing carious dentine visible through the enamel wall.

Remember, I do not advocate extreme measures, but careful, painstaking, conservative attention to these two well-recognized necessities for success.

A would-be artist was once gazing in despair at the marvelous effects produced by a master of the brush, when the artist came up.

The tyro asked this question: "With what do you mix your colors to get such results?"

The reply was, "With brains, sir, with brains."



HOW TO ACQUIRE THE TOOTH-BRUSH HABIT.*

BY DR. F. W. STIFF, RICHMOND, VIRGINIA.

This paper is written, more than anything else, for the purpose of adding if possible, some little fuel to the flame of your enthusiasm for what may be called the new era dentistry, and, if may be there are some who are not as yet enthused on this subject, to say something which may induce them to enlist with us and help win the fight for better teeth for future generations.

Some one has said that there are three classes of mankind, regarding knowledge, viz:

"The man who knows and knows that he knows,

"The man who don't know and knows that he don't know, and

"The man who don't know and don't know that he don't know."

The first class are the wise men; the second are the ignorant who are willing to learn; the third class are hopeless fools—we all know some of them.

To apply to the question. The dental profession are of the first class. They know what the people lack—the information, I mean, regarding their teeth. They are aware by training, education, experience, observation, what the people need in order to effect the saving of their teeth.

With the acquirement of knowledge of any subject, comes, as a natural corollary, a greater interest in and liking for that subject.

The better you do a piece of work as a dentist (which ability to more perfectly do comes of a more perfect knowledge), the greater interest you take in it and the better you like to do that class of work.

And so with the people. The mass of them don't know about their teeth and so have no interest in them.

It is as Greek to them to say that the teeth of the molar region are as much more valuable to them than those anteriorly, as good health is better than good looks.

It takes a long lecture oftentimes to make clear that a dead tooth, from which the pulp has not been removed, may—will likely—ache.

Many cannot be made to believe that the sixth-year molar

*Read before the Virginia State Dental Society, August, 1904.

is a permanent tooth. And thousands think that the filling of temporary teeth is folly and done to make work for the dentist.

The need, then, being obvious, the remedy clear, what part have we in the plan of work, we men who know what is needed?

Does it not stir you to think that we can do so much for the people by a united effort?

You will agree with me that our profession should do more than to line our purses with money, however well earned, by repairing the ravages of disease, when we know that were the proper means used this disease might be prevented in great measure, certainly.

Simply to advise one's patient that greater care is necessary in the way of cleanliness, to prevent decay, has about as much effect, usually, as would the blowing against a strong wind to divert its course.

And so about any matter, almost, upon which we feel it necessary to advise our patients. They listen, oftentimes perfunctorily, and, forget before they get home. Why? Because we may have used some technical terms which made it difficult, if not impossible, for them to fully grasp our meaning. Because, mainly, we don't learn our lessons when we are thoroughly alive to the importance of them, at one reading. We *con* them—and that word "*con*" means "to study, to examine, to commit to memory." And then, these people don't look upon it as a lesson. They don't know the importance of it—they haven't acquired the knowledge—hence, their interest is dormant.

Then there is that long-established habit of neglect, with adults. And this, at last, brings me more closely to the title of the paper, which, however, was not intended for anything more than a text, in the discussion of which I trust you will allow me as much latitude as is often taken by some of our preachers—the more readily, when I remind you of my disadvantage in comparison with the position of the preachers, in that you will have a chance to reply to me.

You tell your patient with all the earnestness and eloquence at your command that to prevent decay the teeth must be kept clean—that only a clean tooth is immune from decay—that your work may fail and other decay almost certain to appear and the teeth be eventually prematurely lost, if neglected. And yet, when you see that patient next, the chances are, if she is twenty years old or more, and has never used the brush habitually, they will

be found to have been neglected. And the saddest part is she will swear she has brushed them carefully. Proving lack of knowledge of how to brush or worse.

The habit of neglect has been established—is the difficulty. A habit may be defined as “a practice, use, custom, acquired by frequent repetition.”

“A sinful habit differs from a sinful act. but as many differ from one, or as a year from an hour.”

It is the repetition of a single thing through long time which make an act a habit.

Voluntary muscles become involuntary by constant oft-repeated use of them in the performance of the same act, as in walking or piano-playing. We do hundreds of things every day of our life, habitually. Our lives would be upset, we would be quite miserable if the things we do by habit were reversed or even if we did them but not as if by second nature, as we say.

Take the habit of brushing the teeth after each meal. Lose or misplace your brush, and you feel uncomfortable, your teeth have an unclean, slimy feeling, as indeed they are unclean and slimy, as you well know. which of itself adds to your discomfort. This feeling, of course, is never known by one who habitually neglects brushing the teeth.

I believe that, such is the perversity of our nature, so inherently wicked are we, bad habits are more easily formed than are good ones. It is all the more necessary, then, that at the best time in life for the purpose, good habits should be taught and encouraged. The older we become, the more fixed we are in our ways. Which is another way of saying, we are creatures of habit, and the older we grow the more firmly our habits are established and the harder they are to break. We get into ruts, another word for habit. “He is set in his ways.” His way is nothing but a habit.

When can we teach the tooth-brush habit? In adult life? Nay, verily. It is with the greatest difficulty, gentlemen, I acknowledge it, because with my enthusiasm on this subject, it is my strongest proof of the difficulty of acquiring habit in adult life, it is only by persistent effort of will that I can brush my teeth after each meal. And I know it must be a rare case of an acquired habit of thorough brushing of the teeth by an adult patient.

Then what are we to do if we believe this habit to be necessary to the preservation of these organs?

My answer is, begin with the children.

I would not have you think, gentlemen, that there are none who do not care almost perfectly for their teeth, and as parents, teach their children properly. Happily there are many such. This work is not just beginning. I do not intend to convey that impression. It is only growing to greater proportions and more rapidly because it is being organized, instead of, as before, by sporadic efforts of individual dentists ahead of their age.

Next: How can we teach the children?

It's the same old hobby I've been riding all these late years. The more I ride the better the saddle fits, and the more at home I feel, though the goal is yet far distant I fear.

We must teach the children in the schools. It is the only place we can get at them collectively—some, many of them, at all.

Knowledge, first exciting interest then habit of cleanliness formed in youth, is our hope. That is the whole proposition.

Teach the children the value of their teeth, from generation to generation, increasing the sum of knowledge and interest as taught in home and at school alike. Caring more for their teeth themselves, and taking them oftener to the dentist, acquiring by force of precept, example and a knowledge of its necessity, the habit of brushing the teeth, the coming generations will surely have better teeth. Better, because given better, more intelligent care.

The matter of inheritance will tend the other way. As the teeth of parents become better and better, rather than as before, worse and worse, so will their offspring inherit this tendency and have stronger, more disease-resisting teeth.

It is hard for children, somehow, to acquire a good habit, certainly that of cleaning the teeth. I have the hardest time getting my children to brush their teeth regularly. I offer to pay them for it, and they forget, forget, as does their father, alas!

A plan adopted by Dr. L. P. Bethel, of Columbus, O., seems to me to be a good one. In a conversation had with him not long since in Washington, on this subject, I complained of the difficulty of getting children in the habit of brushing their teeth. Parents say, "I can't make her brush her teeth." It is the same oft-repeated story to all of us.

Doctor Bethel told his little girl, when she was quite small, that he would give her a penny every day she properly brushed

her teeth, but, she was to give him two pennies every day she failed to do this—a double-barre'd incentive, you see. Now, when she is sixteen, he has stopped this, and you couldn't pay her to neglect her teeth. He has not for years had to deduct his two pennies for default. The habit has become fixed in these years and she will never neglect her teeth again, I warrant.

This suggestion to your patients in their treatment of their children may be of great benefit to them.

The committee of the National Dental Association on the subject of "Oral Hygiene in Public Schools and Institutions" is at work, year after year, trying to excite interest in the dormant members of the profession and the school authorities who will have to be convinced before we can do anything with direct results.

I want to say to you in concluding this rambling paper, which was intended to be very short: Let us always remember that there are two parties to every bargain or transaction. It is the part of the grasping, selfish, short-sighted knave to get all he can for as little as will be received. This man looks upon his profession as, alone, the means by which he can make dollars, regardless of the rights of his patient. I have no reason to believe there is a stricken, guilty conscience before me. I do not believe there is. Virginians, out of whom dentists are made, are not of that class. Let us make each of our patients a friend. Take advantage of the hour in tactful advising and pleasant talk about the teeth. Let your patient leave with the impression that you are interested in her and really want to help her save her teeth, and you have the best advertisement on earth—a patient friend—and will feel that you have doubly earned your fee by well filling present cavities and having taught how to prevent others.

REPLANTATION.*

BY DR J. P. STIFF, FREDERICKSBURG, VIRGINIA.

The subject of replantation has appealed to me more because of some little experience I have had of late with the operation, than from any great study made along this line or any discussion pertaining thereto.

*Read before the Virginia State Dental Society, August, 1904.

If I can offer a new idea or create a discussion of a subject somewhat out of the course of papers usually presented at these meetings, I shall feel fully repaid for any little energies I have made for the proper deportment of this committee.

Do not expect any great expose of theory. I shall not attempt to give that, but on the contrary shall devote what I have to say to a citation of a few cases met with in practice.

We do not hear much about replantation, perhaps because a majority claim that the means do not justify the end. Authorities tell us that it is wise to practice it, when there is incurable chronic abscess or in the early moments of accidental extraction.

I hope to show you that I deem it possible and advisable to perform this operation in cases where there are curved and distorted roots. those aggravated cases in which it is impossible to reach the apex by the most painstaking manipulation.

The first case was that of a young lady who presented herself with an exposed pulp in the first inferior sixth-year molar. By pressure anesthesia, using cocaine and adrenalin, the pulp was thoroughly anesthetized and blanched.

The nerve was extracted from the posterior root and the canal temporarily filled with medicated cotton. On attempting to enter the canals in the anterior root, the broach could not be passed more than one-half the distance. I had never before met with such a hold-up, and naturally I was for the time puzzled. I employed other broaches of different size and make, but none would pass. It came to me that I had here a twisted, distorted root to deal with. From the size of the canal at the curve, I was clearly convinced in mind that it was not an aborted root.

I took the cotton from the posterior root, studied its form, its length and noted the curve, which even in this root was very manifest. I came to the conclusion that something radical must be done. After stopping up the tooth with gutta-percha, I removed the rubber dam and thoroughly discussed the case with the patient, who was a very intelligent young lady. I told her that I considered the only salvation for her tooth was the operation of replantation. I explained the difficulties attending it. That the curved root might be held down so tightly by the alveolus to cause it to break in extracting and that it was possible that the tooth would not prove a useful member

after the operation. On the other hand I placed before her the fact that I knew if those anterior canals were filled only to the distance the broach could be made to go, that eventually an abscess would form due to the gaseous decomposition as a result of the remaining pulp.

I further explained that I believed the alveolus would more than likely yield before the root would break and the tooth could be extracted in its entirety. And finally I convinced her that there was a greater probability of saving than losing the tooth if she would consent to the operation—she consented.

I was glad when she said that I might extract the tooth without the use of an anesthetic for I was exceedingly anxious to follow the case and have no more disturbance to the circulation than might arise from the shock to the peridental membrane and the imposition to the gum tissue which the use of the forceps would cause.

To my delight, the tooth was extracted without fracture of either of its fangs, though a small piece of alveolus came away between the roots. The tooth was extracted with no little difficulty, and if the alveolus had not been quite spongy, as is seen in the mouths of young people, I verily believe the anterior root would have broken at the curve. I was correct in the diagnosis.

The flat root was bent almost to a right angle, while the curve in the posterior fang was more gradual. In my haste to acquaint you with the successful extraction, I omitted to state what preparation was made for the tooth after it was in hand.

A twenty per cent. solution of carbolic acid, a sterilized linen napkin, a patent spring clothes-pin, several sharp, round burs and gutta-percha points for filling, were prepared and laid by to serve me at the proper time. The tooth was immediately placed in the napkin, crown down, held by the clothes-pin. I operated as quickly as possible, going into the small opening at the apex with a No. 2 (round) bur. This size bur was used that I might cause as little change in the continuity of the apex as possible.

I cut up to the curve and proceeded to fill with the prepared gutta-percha points, allowing the gutta-percha to come flush out to the surface at the apex. This done, the tooth was reversed in the grasp of the pin and the other part of the anterior root

and the whole length of the posterior root was filled as before described. The crown was then filled in the usual way with amalgam.

The tooth was dropped in the carbolic solution while I washed out the socket, at first swabbing out with an instrument wrapped with cotton and dipped in the acid solution and then thoroughly syringed out with normal salt solution. It was then stuck in place and while the patient held her mouth open, I wrapped a napkin over my thumb, stood behind the chair, placed the thumb over the tooth and fingers under the chin and came down with considerable pressure in order to force it home. It went to its place with a loud cluck, and with its return was experienced considerable pain. which lasted, however, only a few minutes.

The patient was dismissed and requested to report the following afternoon. She came saying that she had spent a bad night, being kept awake by radiating pains in the lower jaw adjacent to the seat of operation, and that the tooth was considerably sore. I painted the gum with equal parts of iodine and aconite and dismissed her.

In five days the patient reported that there was slightly any soreness and the parts were almost to their normal feeling. She was given a solution of equal parts of aconite and iodine and advised to paint the gum around the tooth once a day until all soreness was gone, and requested to report again in a week.

It had been just two weeks from the date of operation when she saw me again. On investigation, the tooth was found tight in its socket, there was no soreness in mastication and no uneasiness about the surrounding soft parts. The young lady expressed great delight that the tooth was saved and that while she had suffered to a considerable extent, yet felt fully compensated in the fact that she was enabled to retain her tooth and get further comfort in its use.

I have seen her on several occasions since then and she tells me that the operation so far seems a perfect success. I believe she will enjoy great satisfaction for many years in this operation of replantation, while if I had been satisfied to fill the tooth in the mouth, carrying the root filling to the curve and that only, it is my conviction that she would have eventually suffered the pain and annoyance of an alveolar abscess, which

could not have been cured by the usual scientific methods.

My second case is one of similar nature, almost identical in character. A young lady, sixteen years old, presented with the left inferior sixth-year molar much decayed and the nerve exposed. I proceeded with the cocain and adrenalin and completely anesthetized the pulp. I found the anterior root much curved, though not so much as in the case just cited.

After every attempt failed in extracting the nerve from the anterior canals, I concluded that the only efficient plan to pursue was to perform the operation of replantation. I thought of trying sulphuric acid and would have used it if I had been successful in passing my broach the smallest fraction of an inch past the curve—this I could not do.

After gaining my patient's full consent I extracted the tooth with the cow-horn forceps; using them that all care and precaution might be taken to keep the shell-like crown intact. I did not find the anterior root so badly curved as in the case of Miss A. B., but the bend was such as to preclude my reaching the apex of the root by the most careful manipulation. I proved this after extraction by again attempting to pass the curve with the broach.

Having learned by experience how to save time, I was enabled to do this operation (from the moment of extraction until the time the tooth was put back in its socket) in less than five minutes. Knowing that the patient could not be seen for at least one week after the operation, I told her that she might look for some pain and soreness during the first few days at least and gave her our usual shop remedy, a vial of tincture of aconite and iodine, to apply to the gum. In addition to this I recommended a borolyptol mouth-wash. When she returned she reported that her tooth was almost as tight as any in her mouth and that little or no soreness was felt on percussion. She was dismissed to return in ten days, when I found all soreness gone, and her tooth doing daily service in mastication.

Case No. 3 was that of a young lady (you might think ladies are great favorites of mine) with the right superior first bicuspid showing a chronic abscess and fistulous opening. The tooth had been treated some time before, but the fistula still remained. I opened into the root and found that the dentist had forsaken the natural curve in the canal and gone through the side of the root.

Treatment for a long time did not seem to benefit matters, notwithstanding I used every means I could think of to cure the fistula. Finally I determined to extract the tooth and after filling the canal throughout and the artificial opening flush to the side of the root, replaced it. In this instance the tooth was easily extracted as you might imagine from the subacute inflammation that was present.

I found considerable congestion and hyperplasia about the apex of the root which I scraped away. This done, I excised about one thirty-second of an inch of the apex and observed the usual precautions in replantation except that in addition to the treatment in the preceding cases, I ligated the tooth in place. I thoroughly cauterized the whole fistulous tract with unadulterated carbolic acid.

The patient could not report for ten days from the fact that she lived some distance from town. When she came I was much delighted to see her enter with a pleasant smile, a preface to good news as I thought. There was good news, for she said the tooth was feeling very comfortable. Here follows a history of the case.

For two days after the operation, the tooth was quite loose, though very little soreness was at any time experienced. The application of iodine and aconite assisted materially in removing the post-operative congestion. The ligature came away about the fourth day and from then on the artificial stay was used. This case went on to rapid recovery; until today it is proving a great source of comfort to the patient.

The fistula is gone with nothing left to show its course but the cicatrix that indicates that all is healthy and the *cicatrix naturae* has done its full work.

I do not present these cases to show any unusual skill on the part of the operator, it can be easily done by any member of this association with equally as great success as has been my lot with these. What I desire to emphasize is that at times there are cases which come under the eye of every diligent and efficient oral surgeon that can be best treated in the operation of replantation.

I believe that when the roots of teeth are so twisted and distorted that the operator cannot by any means in his power, fill the canals to the apex, but has to leave one-half of the root

with a dead and afterward decomposed pulp to set up inflammation and untold trouble, it is the proper, just and wisest plan on his part to consider and perform without delay the operation of replantation.

DENTAL HYGIENE.*

BY DR. W. WYTHE DAVIS, RICHMOND, VIRGINIA.

We have met at a season when the question of health is being considered. Anxious parents and persons whose systems are readily affected by high temperature are seeking summer resorts. The teething child may find some respite by leaving the deteriorated atmosphere of the crowded city.

The adult may have his digestive system improved by repairing to some mountain resort, there to drink "ad libitum" of some mineral water, but to both of these classes the disorders of the dental organs will require attention, whether they be at the seaside, or on the mountain top. The science of health, whether viewed from the standpoint of generalism or specialism is one that should engage our most earnest attention and our most thorough research.

Gentlemen, we are to be congratulated on the advances that have been made in our profession, especially in the mechanical department, but it is dental hygiene that I feel we need most information on, and to this department I submit for your consideration, some practical suggestions.

In the art of preserving the teeth, we are compelled to produce hygienic conditions favorable to that end. Possessing such a knowledge our profession is directly interested in everything that relates to that system. Our efforts as dentists would be repaid for the thought and time expended. The health and comfort of our patients would be a compensation for all the time given to research.

To successfully handle and treat the dental organs we must begin as suggested by Dr. Oliver Wendell Holmes when he said "that he believed that any disease, no matter how virulent or how deep-seated, whether it was cancer, consumption or cholera, any disease could be cured if the physician was called in

*Read before the Virginia State Dental Society, August, 1904.

time." But with his wonted humor he added, "there are cases in which the physician should be called at least two hundred years in advance."

So in the science of preserving the teeth how necessary is it for the mother during gestation to use proper foods, and take systematic exercise which will combat pathological conditions that will surely make themselves known in the child in after years with a weakened body, of which the dental organs are a part. In order for the mother to communicate to her offspring the proper tooth-making material, her foods should be those that contain the nitrogenous and saline products, otherwise the nerves and muscles would not be nourished.

The preservation of teeth is a problem confronting us at every stage in life, and yet with all the advancement and enlightenment of the twentieth century, has not been solved. Notwithstanding the care and attention given to filling and treatment of teeth, their life is comparatively short as many of our profession have, by actual experience, noticed this retrogression from one year to another, and the same teeth frequently require patching up; and our patients often ask: "Was not this tooth filled but a short time ago?"

Now to what is the cause of this universal weakening of tooth structure due? The uppermost question in my mind and answer, is this: how are we to produce the strongest foundation in the dental organs; and when this is done, whether from accident or chemical conditions affecting the teeth, and not until then have we reached a height on which our profession stands for the preservation of teeth. Too frequently we content ourselves with the filling or extraction of teeth, without looking back and measuring present conditions with the past, and honestly see if we have made the usefulness of the dental organs extend or likely to extend to the age of three score and ten. It is true we have made many valuable and useful discoveries for the restoration of teeth, but dental hygiene does not live by these. For example, where a tooth has been filled for many years and given good service, and without any provocation, the pulp dies, how do we account for this? Is it always thermal changes the theory usually advanced? No! You will usually find this condition, the result of some disease causing a strangulation, or insufficient blood supply to the tooth and thereby causing a weak-

ened member in the dental arch. Permit me right here to say, that after years of observation in the mouths of many healthy patients, who, being questioned as to the care they took of their teeth, answered nothing more than plain water, and that not on a tooth-brush; and as to washes and tooth-powders, they were unknown; I have come to this conclusion, that decay of the tooth, although the result of chemical action, has its origin in the stomach from the result of fermentation and hence is the result of constitutional disturbances. As an example of this, the white decay found around the cervical margins of teeth, called acid decay, is without an exception found in the mouths of those of fermentation diathesis; namely dyspeptics and catarrhal sufferers, in whose mouths while at work I have had the saliva actually make my fingers tingle, the same as if I had them immersed in some acid. So by the removal of the systemic disturbances causing this condition you have solved the principal means for the preservation of teeth, and a means of preventing decay; instead of trying chiefly to produce asepsis, by the use of an alkaline mouth-wash when the true cause lies deeper. Disease of the dental organs which become weaker and more susceptible to decay, with each succeeding generation, is the result of this age in which we live. Let us take the North American Indians, from whose skulls we find the most perfectly formed teeth, arch and occlusion, where no pathological conditions seemed to have existed; what lessons are we to learn from their modes of living? (1). Exercise, as applied to our time is needed for the elimination of gases and rapid oxidation of tissue in carrying off effete matters, the producers of disease. As to the toxic effect of certain diseases I will only mention one and that well known: indigestion, our common inheritance: that disease which affects the teeth from an insufficient blood supply caused from an inactive and improperly exercised body. (2) Next, our *foods* today are largely substitutes and adulterated, and thereby not giving the proper nourishment to the body, namely, in furnishing substances rich in nitrates and phosphates. In the aborigine, what was his food and drink? Corn meal furnishing the lime to the body and teeth and the meat of the buffalo furnishing the muscle. Water from springs richly laden with iron and sulphur and furnishing to the blood that corpuscle which was so health producing. Of course we may not have the buffalo as one of

our staple foods. but the lesson taught is to have a proper lime producing agent as is found in a plain food, such as grown the world over in the shape of corn. Following after the first law laid down, namely exercise, the system will require, and should have proper food, in shape of meat (beef) for warmth and muscle bearing agent. Right here that hardness in the teeth of the American Indian, which structure was more like ivory to my mind, was the proper exercise of mastication in the chewing of meals, which required much force from the manner the meat was cooked in the sun and cured. Here I may say that the Indian, by erroneous idea, is accused of glutting, is not the case. Twice a day is about as frequently as they ever ate, and never partaking of food where the mind would be under great strain. You may ask: what strain? In the chase or engaging in battle, possessing that instinct or knowledge that mental strain or worry retards and stops digestion thereby causing sickness and *vice versa*. It may be interesting to note how few cases of septic poison resulted from wounds in the abdomen, received in battle, which was due to the absence of food before an engagement. With us, after a hard days work, no exercise and little at best is taken, the stomach is loaded and overtaxed and no doubt diseases arise. (3). *Rest*, this remedial agent and sentinel to see that the proper proportion and percentage of foods are distributed in the proper channels. Why is it that the primitive man was such a perfect body, and long life; and decay which was only brought about by accidents? This was due to that life of rest and quiet and always taken after eating; and so marked in the lower animals. But in the teeth of man today as we find them decayed and needing attention and the general condition of the patient should be first looked into and treated. Considering the condition of the dental organs to be largely influenced by the state of the general system, whether that system be affected by habits, occupation or heredity, I hold that local treatment can affect but little in dental hygiene except for rendering the mouth aseptic, and thus contributing to improved digestion, I consider the various dentifrices of but little value.

Therefore in conclusion, I submit that more attention be given to the improvement of the health of our patients. It is true that this rather comes under the domain of the general practitioner, but nevertheless it becomes us to call attention to it.

ANNUAL ADDRESS.*

BY I. B. SMITH, RICHMOND, VIRGINIA.

Today I have the privilege and exceeding great pleasure of extending to you—the members of this old and honorable organization, and to our guests from this and other States—a most cordial welcome to our thirty-fifth annual meeting.

At Hot Springs, Virginia, last summer, under the able direction of Dr. Baskerville Bridgforth, was held one of the most successful meetings in the history of the association; and to those of us who were so fortunate as to be present it will always be remembered and cherished as such. It was at that meeting, amid such pleasant surroundings, that you so greatly honored me by electing me as the president of the association. To show my appreciation of this generous act, I resolved then, that I would put forth every effort and work unceasingly, with the sole object in view, of making this meeting as near as possible as successful as that held at Hot Springs. However, if this meeting shall approximate in success those held in the past, the largest share of the credit is due to the executive committee and the chairmen and members of the various other committees, who have so cheerfully and heartily given me such loyal support and assistance. The courtesy and co-operation which has been given and shown me is deeply appreciated and I now thank each guest or member of the association who has given us a paper, a clinic, or assisted in any way toward making this a successful meeting.

I am glad to feel that all services that have been so willingly rendered by each of you was prompted from hearts filled with desire for the success and advancement of our chosen profession, and for love of the "Virginia State Dental Association," which is so dear to the hearts of us all.

The profession of dentistry is rapidly advancing, higher and higher her standard goes. I shall not consume your valuable time with any feeble attempt of mine to describe or enumerate these important changes—you know them as well as I. It is also gratifying to note that this association is steadily growing, not only as regards its membership, but in the scope and character of the many excellent papers read and discussed and

*Read before the Virginia State Dental Society, August, 1904.

the valuable and interesting clinics given. Our association already possesses the intellect and ability. and, as Doctor Norris has so well said, it only remains necessary to kindle the interest and zeal of the members and thus establish a willingness to work and we will then see each succeeding meeting become better and better and in a short while this dear old association will be occupying a place in the very front rank of dental societies in this country. Possibly of all the States in the Union, there is none that possesses a more faithful or better qualified Board of Examiners than Virginia. We should ever feel grateful to this Board. Their labors are arduous and unrewarded and given at the sacrifice of much time. Surely, from us they should at all times receive that cheerful and hearty support and co-operation which they so richly deserve.

We are to be congratulated upon having on the program committee such an able chairman—possessing such excellent taste and such an artistic eye. I know you will gladly join me in thanking Doctor Beadles for the beautiful program he has prepared for this meeting.

At the last meeting of our association the State was divided into three sections and it was decided that the meetings should be held within the bounds of these sections in rotation. By this division, it placed in the central section no suitable places, except cities, where we could secure the accommodations and conveniences so necessary for a successful meeting. Our executive committee has just had much experience along this line. I would therefore recommend that the State be divided into two sections instead of three, as at present. This would enable us to go to the mountains one year and the next we could select the seashore, if you willed it thus.

It is with sincere regret that I report the death on June 28th of our much beloved former president, Dr. Charles L. Steel of Richmond. In the death of Doctor Steel, the profession has lost a valuable member—one who was always ready to advance its interest—a man of sterling qualities, of high character and amiable disposition and faithful in all the relations of life.

I would respectfully recommend that a committee be appointed to draft suitable resolutions and take any other action

it might be deemed proper in connection with Doctor Steel's death.

New members are not only desirable but absolutely necessary to the success and growth of any organization. There are many good ethical dentists in our State who are not now members of this association.

This should not be the case. The larger our membership and attendance at the annual meetings, the easier it will be to get excellent exhibits from the manufacturers, which is desirable and important. With a larger membership we will also be able to secure many more excellent papers and clinics. In this connection, I quote the following from Doctor Bridgforth's able address, delivered last year at Hot Springs. "See to it," said he, "that at our next meeting, each of you present at least one name for membership. You say that this cannot be done. I dare say that every member of this body has a friend who is not a member of this association and who is eligible to membership. How effective a personal appeal in such a case would be I leave to your judgment to decide. And if every member will do this we will have next year the greatest meeting in the history of this association."

This is true and I hope that every one of you will do this the coming year if you have not at the earnest request of your former president done it during the past one.

In conclusion, permit me to say that I sincerely trust that this may be such a pleasant and profitable meeting to us all, that when its sessions are ended and numbered with those of the past, the pleasant memories of the few days spent together may create within each of us a longing desire for the swift return of the time for the next annual meeting when we can again renew these delightful acquaintances which we are today so happily enjoying.



A HAND-CARVED, ALL-PORCELAIN, JACKET CROWN
WITHOUT THE USE OF A FACING.*

BY DR. G. B. STONE.

An all-porcelain crown—this approaches dental art.

The first step in this beautiful work is to prepare the tooth. It is especially indicated in the cases where a tooth is very badly broken down, the pulp not being exposed or in the peg laterals. In cases of that character you can replace a tooth with a jacket crown and produce better results than in any other way. In preparing the tooth, cut a shoulder with a square-end fissure-bur just above the gingival border. Then take a piece of metal, either 30, 33 or 36-gauge of aluminum or copper, making a band and placing around the tooth. Make a mix of Weston's Insoluble Cement, mixing stiff, and force the cement into the band that is around the tooth, leaving it there until it becomes hard. Then remove, taking another mix of cement, mixed just as stiff as before crowding it into this impression and removing after setting. You then have a die and counter-die of cement. Burnish the foil over the die, then place the counter-die over the foil and press the two together. Next take an impression with plaster of Paris of the tooth in the mouth, placing this die in the impression, varnish and fill, building up an articulated bite. You then have the cement model standing in your plaster cast instead of the impression being made from plaster. Then cut away one-twelfth of the mesial and one-twelfth of distal of the adjoining teeth. That enlarges your space one-sixth. Then build on your porcelain in the model and carve your tooth to the occlusion, and in this work, of all other to my mind, it is important to use a high-fusing porcelain (*i. e.*, the S. S. White), as it holds its shape better than any I have ever used. Then remove and bake. Strip your matrix from your tooth, and you have a jacket crown that will fit the tooth as accurately as any inlay.

*Report of clinic at the Clinical Exhibit of The Ransom & Randolph Co., Toledo, Ohio, December 12, 13, and 14, 1904.

FOOT NOTE. The Ransom & Randolph Co. gave a Clinical Exhibit in their new dental depot at Toledo, O., December 12, 13 and 14, and believing that some of the clinics given are of sufficient interest to the general practitioner to warrant publication, we shall present several for the benefit of our readers.—EDITOR.

METHOD OF TAKING THE BITE AND IMPRESSION
AT THE SAME TIME.*

BY JOHN KERR, DETROIT, MICHIGAN.

To take the bite and impression at the same time for bridge-work is conceded by all to be the only true method to obtain the best results. The way to obtain these results the most efficiently is by using Perfection Impression Material, Kerr Bite Tray, and the Kerr Anatomical Articulator.

Take a small quantity of Perfection Impression Material. Form it into a small roll from two to three inches long and from one-half to three-quarters of an inch in diameter, according to the size of the impression to be taken. Bend it around on both sides of the bite-tray and flatten out into convenient form or about the thickness of the depth of the tray. Then place tray and compound in warm water again to get it the proper softness to take a good impression. Place the first finger back of the impression material and press the bar of the tray into the space that is to be bridged, keeping the greater part of the impression material on the impression side, then let the patient close the teeth together. Examine the opposite side of the mouth to see that you have the proper occlusion and articulation.

The impression material hardens quite quickly, but if you wish to hasten the hardening use the siphon or saliva ejector and run a little cold water on it. (This will harden it in about one minute's time).

SPECTATOR: Are you not afraid of the compound bending and changing your impression and bite?

ANSWER: No, for Perfect Impression Material is harder than plaster and will break before it will bend.

SPECTATOR: Suppose the abutments for the bridge are not parallel, how are you going to remove your impression?

ANSWER: It is a mechanical impossibility to have perfectly-fitting caps on a piece of bridge-work where the abutments are not parallel. It will be a good warning to you if you cannot remove the impression that the bridge would never go on in position when soldered up. The abutments in bridge-work should always be parallel or as nearly so as possible. (The

*Report of demonstrations at The Ransom & Randolph Co.'s Clinical Exhibit.

caps are supposed to be on the abutments when taking the impression).

Now we have the bite and impression for the bridge with the caps in the impression, all that is necessary is to run the models and set them up on the Kerr Anatomical Crown and Bridge Articulator. Soften the impression material and separate the models. Wax up the bridge in the ordinary way, then with the anatomical movement of the articulator all imperfections in articulation can be corrected. This can be done in a few minutes, while the bridge is in the wax.

INLAY.*

BY DR. G. B. STONE.

In the first place I will undertake to describe the methods I use in making a porcelain inlay. The first thing to be considered is cavity preparation. To my mind we have not spent time enough on cavity preparation for inlays. Look at the years of work and thought that have been put on cavity preparation for any other material, and then for us to have the presumption to say that any shape is all right for inlays seems to me the height of folly. I believe the dentist who is accustomed to thinking and when doing a piece of work tries to produce lasting results, surely cannot agree with a man who says any shaped cavity is all right.

My idea of cavity preparation is with a view to retention. I feel that herein lies our success or failure. If our cavities are not properly formed to retain the filling, our work will be short lived. I believe in forming undercuts for retention, that the cavity should be formed so that the filling can be introduced only from one direction and that should always be the direction in which there is the least strain. The walls should be as near parallel as possible. I think that a straight wall is more retentive than one with too great an angle.

Also it is of great importance to study the tooth and its conditions. In forming a cavity, be careful not to weaken the

*A porcelain clinic given at The Ransom & Randolph Co.'s Clinical Exhibit.

tooth any more than is absolutely necessary, yet do not hesitate to cut away the tooth substance until the cavity is properly formed; then take an impression with cement, mixing it very stiff; in so doing you do not need to use anything to prevent the cement from sticking to the cavity. You can then study your cavity formation better from the impression than from the cavity itself.

The next step is to burnish the matrix over the impression; after having carefully adapted the matrix, replace matrix and impression into cavity. By so doing you carry the foil to the bottom of the cavity without tearing it. Then by holding the impression firmly into position it allows you to burnish the matrix around the margins, thus preventing the matrix warping.

Next remove the impression or model from the cavity, leaving the foil in position. You can then burnish out from the bottom to the margins any lapping or buckling that has occurred. When you have gotten the matrix thoroughly smooth remove it and place it in your furnace, bringing it up to the required heat for baking porcelain. Then replace in the cavity the matrix, using gum camphor and packing it in firmly. By so doing you will be enabled to burnish the margins very closely and the gum camphor allows you to remove the matrix from the cavity without springing it. If you wish to invest, it also allows you to do so without the danger of distorting your matrix. Then by dropping a drop or two of alcohol upon the camphor you can burn it out without leaving any sediment or disturbing your matrix in any way. I find that pulverized silex is the best investing material that I have ever used for inlay work. You can mix it with water, alcohol, or place your matrix in it dry, just as you please.

The next step is putting in the porcelain. I am demonstrating the merits of the S. S. White porcelain which I believe is superior in every way. After you have placed the first amount of porcelain and absorbed the moisture, then take a lance and divide the porcelain in cross-sections so as to break up the center, as porcelain shrinks to a common center, thereby having a tendency to warp the matrix, and by sacrificing in both directions at right angles you break up the center and the porcelain shrinks to the periphery, eliminating a great deal of the danger of warping the matrix. Then bake, remove and let cool slowly, and you will find the porcelain has shrunken from the center,

enlarging the incisions. Then fill in with new porcelain, replace and bake again.

You now have a porcelain covering the entire bottom and sides of the matrix that will not shrink any more. You can then build one layer after another until your filling is completed. As to the color problem, I believe that you get the best results by baking one layer over the other. I also feel that it is just as important to use a porcelain that does not have a foundation body but all fusing at one temperature. Then bake in such a way as never to bring the porcelain any more than to a high biscuit until the last operation. In so doing you run no risk of burning up the porcelain by overfusing.



SUGGESTIONS

TO STOP A PUNCTURE IN RUBBER DAM.

W. W. Price, Centerville, S. D.

A convenient way to stop a puncture in rubber dam where it is not practical to remove same: Select a pledget of absorbent cotton slightly larger than the hole, saturate cotton in sandarac varnish, stretch dam slightly to enlarge puncture push the cotton in the hole, leaving it project slightly on either side. I have held back saliva for several hours from a small hole, as the sandarac will harden when it comes in contact with saliva.

ANTISEPTIC CHLORO-PERCHA.

L. G. Noel, D. D. S., Nashville.

For making antiseptic chloro-percha. I keep ever ready an ounce bottle of chloroform in which has been dissolved forty grains of aristol, always accessible likewise is a sheet of red base-plate gutta-percha. Pouring a half-teaspoonful of the aristol mixture upon this sheet it is quickly spatulated into a syrupy consistency and is then ready to be introduced into the canal. The solvent is improved by adding eucalyptus oil to the chloroform in order to prevent the too-rapid evaporation and drying of the gutta-percha. It may be compounded thus:

Chloroform,	
Eucalyptus.....	aa ss fl 3
Aristol	gr. 40
M.	

The canal having previously been wetted with the oil of eucalyptus, the chloro-percha is led by capillary attraction into the finest parts. A gutta-percha point is introduced as a central core, and pressed as tight as possible, when the operation of root-filling may be said to be complete. The introduction of

gutta-percha points is not as easy as the novice would infer from a description of the method. It will become easier when we find a method of making the gutta-percha points stiff, yet flexible. As we get them from the manufacturers they have a most provoking tendency to double upon themselves and refuse to find their way into the canal. This difficulty may be overcome to a certain extent by the use of a suitable flexible smooth broach for catching the gutta-percha, stopping at or near its point, and thus supported it may be carried into the canal. Such instruments I make from old broaches after the barbs become dulled or broken off. They must be highly polished and sharp as fine needles at their points. After the point is carried well up, an old serrated flexible root-canal plugger should be thrust in at the orifice to hold the mass in the canal while the broach is being withdrawn. This latter instrument will be found useful for packing the whole mass tightly in the canal. It should be used cold, for it penetrates the mass when heated and hence may bring all away when withdrawn.—*Dental Digest*.

CAUSE OF UNSATISFACTORY RESULTS OF OPEN-FACE CROWNS.

J. C. Salvas, Philadelphia.

Unsatisfactory results with the open-face crown may be attributed to either of two causes: either it is improperly made,—that is to say, it does not conform to the shape of the tooth,—or, while it may fit the tooth perfectly, it is not made strong enough to withstand the strain to which it is subjected. The result in either case is the same, the cement, being exposed, washes out and decay takes place. It is essential, therefore, that the crown should fit the tooth accurately, that it shall be made so as to prevent being forced up under the impact of mastication, and that it shall be strong enough to meet the requirements for which it is designed.—*Dental Brief*.

HYDROGEN DIOXID.

To prevent the acid reaction of hydrogen dioxid, when about to use it mix with an equal volume of lime-water. It will be equally effective and not escharotic.—*Dental Register*.

TO DRILL CAVITIES IN PORCELAIN TEETH.

J. F. Steele, Eagle Grove, Ia.

With corborundum wheel grind down a pit of suitable size. Make a paste of glycerin, turpentine and corundum powder and rub it into the pit, and with copper mandrel drill two retaining points. In this way a cavity can be prepared in a porcelain tooth in five minutes.—*Dental Brief*.

TO CLEAN AND POLISH GERMAN SILVER.

C. J. Hadley.

Anneal by heating to red heat and plunge in a solution of oxalic acid. This cleans and softens the metal better than any method I know of. In polishing use Burnshine or Solarine instead of pumice or whiting.—*Dental Review*.

HOLLOW GOLD INLAYS.

Dr. C. N. Thompson, Chicago, Ill.

There are many methods for making fillings of this kind, many of which can be relied on to insure a fit in ordinary cases, but when the cavities become very extensive those methods that depend upon filling the inlay matrix with gold scraps and plate or mat gold are apt to suffer from warpage due to the shrinkage of the solder used; and, besides solid gold inlays are objectionable because of their great metal bulk when used in vital teeth.

The hollow gold inlay has several points of merit, the most important of which is that, because its cover and matrix fit together perfectly at their edges, there can be no warpage that will affect the marginal fit of the filling. It is less expensive in metal because it is hollow, and for the same reason it is more comfortable because the hollow space is opposite the vital part of the tooth, which when filled with cement gives protection against thermal change and affords a good mechanical attachment for cement retention. Another feature is that the filling does not rest upon the bottom of the cavity, which favors a more perfect marginal adaptation.

Of all the methods now in use for smaller cavities, that of filling the matrix with crystal mat gold seems best. To make this filling hollow, place a piece of carbon the size of the opening desired into the bottom of the matrix and pack the mat gold around it to the desired contour and satisfy the gold with solder, after which invert the filling and, using a bur, cut away the matrix covering the carbon and remove it, thus leaving a hollow effect in the cavity side of the filling, the advantages of which are as mentioned previously. The gold inlay is now so firmly established that we await the advent of a practical cast gold filling.—*Dental Era*.

TO MAKE LOW-FUSING PORCELAIN ADDITION.

1. Grind the facing, or other high-fused bit of porcelain until every trace of glaze on the surface to which you wish to make a low-fusing addition is thoroughly removed.
 2. Give the ground surface a very thin coat of low-fusing body.
 3. Not only fuse, but *flow* and melt this thin layer over the prepared surface and into the substance of the facing.
 4. Cool deliberately.
 5. Grind the surface of the low-fusing addition, thoroughly removing as before the glaze, and add low-fusing body as in cases where that kind only is usually used.—*Dental Office and Laboratory*.
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CAUTIONS AGAINST THE USE OF ADRENALIN.

M. I. Wilbert.

Neugebauer reports that he has seen several cases of localized gangrene following the use of solutions to which adrenalin had been added for the infiltration method of local anesthesia. Elderly persons were especially liable to this, and he therefore cautions against the use of adrenalin in old persons.—*American Journal of Pharmacy*.

TO INSURE FLOW OF VULCANITE RUBBER.

My present practice is to employ a mixture of one part benzine and two parts alcohol, dipping the rubber in this mixture, before packing it, and closing the flask with the additional aid of hot water. This does not appreciably retard vulcanization, and it makes flask closure a much easier operation. If, however, there is the slightest opening at a point, the rubber will penetrate it.—*Dental Office and Laboratory.*

BRIDGE-WORK HINTS.

Hart J. Goslee, D. D. S., Chicago.

Throughout the construction of this work by far the largest proportion of success will be derived from the use of small bridges, and the opportunities for achieving these desirable results will usually be lessened as the operation becomes more extensive or as the number of teeth involved increases.

Supplementary principles which will materially add to the opportunities, and which must always be observed if success is to be attained, are herewith indicated:

1. Do not attempt extensive operations with a view of obtaining more or less permanent results in the mouths of patients under fourteen or fifteen years of age, as the conditions are usually very unfavorable at this time.

2. Do not use loosened and unhealthy roots for abutments, as such conditions only invite failure.

3. Always increase the resistance and lessen any possible chance of failure by utilizing a maximum instead of a minimum number of abutments.

4. Always make every possible mechanical provision against the influences of lateral or antero-posterior stress.

5. Always avoid an interlocking occlusion or an unfavorable articulation which will in any manner interfere with or prevent the free lateral movement of the mandible in the act of mastication.

6. Have the occlusion of the abutments, if anything, more definite than that of the "dummies," whenever possible, and provide the latter with as small an occlusal surface as is consistent with the requirements of mastication, thus minimizing the stress to be endured by them.—*Dental Era.*



CORRESPONDENCE

PHYSICIANS' AND SURGEONS' FEES.

I have read in a late issue of the *Dental Review* a discourse on fees from the pen of Dr. B. J. Cigrand. I desire to call his attention to the fact that many fabulous fees have been paid to physicians and surgeons—Erisothotus was paid 60,000 crowns by Seleucus for restoring his son, Antiochus, to health; the Emperor Augustus and his successors paid about 250,000 sesterii annually for their doctors' attendance. Dr. Willis, for his services to George III. had \$7,500 per annum for twenty years and his son was pensioned for life with £650. Sir Astly Cooper received about \$105,000 for his highest year and averaged for many years \$75,000. Dr. Diewsdale received \$60,000 for vaccinating the Empress Catherine of Russia and her son, and a pension of \$2,500 for life. The most munificent fee of modern times was that of the Emperor Joseph of Austria, who asked Dr. Quarin how long he had to live. The physician said: "Not longer than 48 hours." For this prompt declaration he made him a baron and gave a pension of more than \$10,000 a year for the support of the new honor! I do not know much about modern fees, only that the late Dr. Parker received \$1,000 per day for attendance upon a patient. It is said that Dr. Thos. W. Evans had many fees of \$1,000 to \$10,000. Most of us are content to work for \$50,000! per year and let it go at that.

Yours truly,

A. W. HARLAN,
1122 Broadway, New York.

March 17, 1905.

NEW PUBLICATIONS

ORTHODONTIA AND ORTHOPÆDIA OF THE FACE. By Victor Hugo Jackson, M. D., D. D. S., Professor of Orthodontia in the Dental Department, University of Buffalo; member National Dental Association; Fellow of the New York Academy of Medicine; member of the American Medical Association, etc. Philadelphia: J. B. Lippincott Co., Publishers, 1904.

In the writing of this treatise the object of the author has been to present a description of his own methods of treatment of irregularities of the teeth. From the character of appliances used Dr. Jackson has termed it the "Crib System." The anchorage is secured by spring-clasp attachments and partial clasps, supporting a base-wire, to which any form of spring may be added.

The author says: "For many years I have applied in my own practice the principles explained in this book, and the results warrant me in giving a detailed description of my system. In the meantime I have been urging upon the profession, in writings and public demonstrations, the use of the spring as a force in regulating, and it is especially gratifying to note its more general adoption in place of screw-pressure." The object in writing the book, he states, is "to present, in detail, yet in a concise and systematic form, a description of my methods for correcting irregularities of the teeth, and also to introduce a complete and original system for the orthopædic treatment of the face. I have aimed to treat the subject in such manner as both to adapt it as a text-book for the student and to suggest methods of procedure for the active practitioner."

As an aid to the active practitioner the book serves a good purpose for the dentists who undertake orthodontia and particularly the men who are making a specialty of the science, should be familiar with all the various successful methods so that they may apply whatever seems best suited for conditions in the case in hand to obtain the best results.

For this reason a work to serve the best purpose as a textbook, should contain the best of all the successful methods advocated by the various orthodontists and not be confined to the appliances and methods of any one man.

While the spring, as used in this system, is undoubtedly of the greatest value in many ways, there are conditions where the Angle arch, it seems to us, is indispensable.

Like operative dentistry, however, nearly every operator has his favorite methods and with these he seems to obtain the most satisfactory results.

It is to be regretted that the author has illustrated his cases with drawings instead of half-tones of patient and models. For instance, on page 206 he shows a case where the laterals had erupted in lingual occlusion and the cuspids directly in front of them. In this case the extraction of the cuspids was resorted to and the laterals moved buccally into the line of occlusion. The next drawing shows the teeth after movement had been effected, and following this is a drawing illustrating the lower arch from which one of the incisors was extracted on account, as the author states, "of one incisor having been removed, the others bunched together and the space between the cuspids being too narrow for their admission, and owing to the close occlusion it was not considered practicable to increase the distance between the cuspids sufficiently to admit the irregular teeth." In this case had the author presented a front view and profile of the patient's face, before and after treatment, and models in occlusion before and after treatment, the exact results would have been shown. But so long as mere drawings are presented, and models not in occlusion, it is impossible for the reader to determine just what the final result of this treatment was. To illustrate appliances and their application the drawings answer every purpose. The appliances described and illustrated by the author show great ingenuity and undoubtedly have much merit when properly used, as the author himself has for years obtained successful results through their use.

The book is therefore a valuable contribution and it seems as though every practitioner ought to find many useful methods and profitable suggestions therein.

The author gives his system freely to the profession. He says: "Although no letters patent protect me in the material advantages of my system, I am not without reward; I shall find

in the knowledge that I have in a manner aided the work to which we give the best part of our lives, the best part of our knowledge. If my professional brothers find the system I have outlined a help to them in their practice, and a step along the road to progress, I am amply repaid."

The book contains four hundred and fifty pages of text, thirty-four insets, and an appendix including descriptive matter and forty-four page plates illustrating apparatus that has been used. There are in all eight hundred cuts, of which seven hundred and sixty are original with the author. The book is well printed and bound. Dentists who practice orthodontia should have a copy of the work on their library shelf.

A MANUAL OF MECHANICAL DENTISTRY AND METALLURGY. By Geo. W. Warren, A. M., D. D. S., Professor of Clinical Dentistry, Pennsylvania College of Dental Surgery, Pennsylvania; author of a Compend of Dental Pathology and Dental Medicine; editor Richardson's Mechanical Dentistry—second edition revised. Philadelphia: P. Blakiston's Son & Co., Publishers, 1905. Price, net \$2.00.

This second edition has been thoroughly revised "in accordance with present-day technic." "Obsolete methods," the author says, "have been eliminated, and multiplication of theories avoided, that the dimensions of the work should be kept within convenient limits."

The mechanical dentistry portion of the work covers one hundred and seventeen pages, of which the subject, "Celluloid as a Dental Base," occupies sixteen pages.

After a short chapter on "examination of the mouth," the subject of "impressions" is considered. In this chapter we notice a number of half-tones made by THE DENTAL SUMMARY to illustrate a special article by Dr. G. H. Wilson in the September, 1904, number, but fail to find any acknowledgment or credit to either Dr. Wilson or THE SUMMARY. The chapter on the "selection and arrangement of the teeth" is a complete and valuable one.

In contrast there are here and there descriptions that are not as fully written as they should be to make the methods unmistakable. For instance, the following is the only instruction the author gives for the "Forming of Dies and Counter-dies": "From the various methods which have been adopted, we will

here consider only the one which has proven the most satisfactory and is most generally used. It consists in pouring melted metal into a mold, made in sand or marble dust, from a plaster cast. After the die is thus secured the counter-die is obtained by pouring upon it metal which melts at a lower temperature than that of which the die is made."

From this would the green student know from what metals to make the die and counter-die the temperature at which the metals should be poured to obtain the best results, etc?

Following the mechanical dentistry he devotes a few pages to "obturators and artificial velum" and "inter-dental splints," then devotes twenty-seven pages to "the correction of dental irregularities."

This superficial description seems out of place in a mechanical dentistry. No one should attempt the treatment of mal-occlusion unless he understands thoroughly at least the principles of tooth movement and occlusion.

Not a word is given about what correct occlusion is and such indiscriminate teaching as the following, on page 134, may do great harm: The author here says, regarding "Protrusion of the Cuspid Teeth": that "if the upper arch is large enough, the extraction of the first or second bicuspid teeth will allow the cuspid teeth in a young person to move down and back into place unaided." He fails to tell the reader what deformity for life to that face or jaw may result from this very procedure.

Bridge-work the next subject considered, covers thirty-five pages of text, and Dental Metallurgy the remaining sixty pages. The book is neatly printed and bound, and contains one hundred and seventy-nine illustrations.

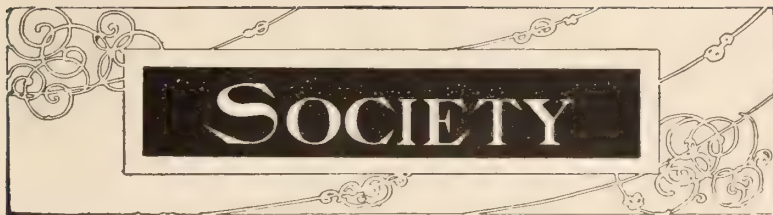
ON THE EXTRACTION OPERATION WITH SPECIAL REFERENCE TO THE USE OF THE ELEVATOR. By G. Mulready Keevil, M. R. C. S., L. R. C. P., Lon., L. D. S., Eng., Pub. by John Bale Sons and Danielson, Ltd., London, Eng. Price, 2 shillings net.

A neat little book of useful suggestions on the extraction of teeth with forceps and elevators.

ANATOMY—MANUAL FOR STUDENTS AND PRACTITIONERS. By Henry E. Hale, A. M., M. D. Philadelphia: Lea Brothers & Co., Pub.

This is one of the medical epitome series edited by V. C. Pedersen, A. M., M. D., contains 389 pages with seventy-one illustrations. This little book contains more than the mere essentials of human anatomy and the matter is presented in a clear, concise, condensed form. In order to make the volume suitable for quizzing, and yet preserve the continuity of the text unbroken by the interpolation of questions throughout the subject-matter, which has heretofore been the design in books of this type, all questions have been placed at the end of each chapter. An arrangement useful alike to students and practitioners.





NORTHERN OHIO DENTAL ASSOCIATION.

The 46th annual meeting of the Northern Ohio Dental Association will be held June 6th, 7th, and 8th, at Gray's Armory, Cleveland, Ohio.

This is not only one of the oldest, but is one of the very best attended meetings in the country. This year, the program is one of unusual strength and interest. The leading subjects for consideration are:

1. Humanitarian methods.
2. Mistakes.
3. Prophylaxis.

Under the first is considered "High-pressure Anesthesia," by Dr. C. G. Myers, of Cleveland, Ohio; and "High-pressure Anesthesia as Compared with Other Pain-Preventing Methods," by Dr. D. H. Zeigler, of Cleveland.

Essays under the second group include the "Mistakes of the Country Dentist," by Dr. R. D. Wallace, Scio, Ohio; "Mistakes of the City Dentists," by Dr. F. J. Spargur, Cleveland, Ohio; and "Mistakes in Ethics," by Prof. S. H. Guilford, of Philadelphia, Pa.

The third group includes the essays: "Two Sources of Tooth Life and their Relative Importance," by Dr. D. D. Smith, of Philadelphia, Pa.; and "Diseases of the Periodental Membrane and Treatment," by Dr. J. V. Stahl, of Wooster, Ohio.

The essayists and those who open discussions upon the various papers, have been selected for their particular fitness to handle subjects assigned to them.

Under "Mistakes in Ethics," Doctor Guilford will point out, as only he can, some mistakes that are being made by the profession in the relation of its members to each other, together with the mistakes made in treatment of patients and the public. Great good is expected to result from the presentation of this paper and the discussions that will follow. Many false impressions have existed in the past and still exist as to the duties we owe to each other, our patients and the public, and it is expected that the three papers on "Mistakes" will do much to correct this.

Doctor Smith's paper bears upon that all-important subject, prophylaxis; he will bring a patient with him showing results accomplished by his method of procedure. He will illuminate his paper with models and instruments.

Throughout the entire program much attention will be given to the study of humanitarian methods. (Methods which make it possible to perform dental operations free from pain.)

The two papers, "Application of High-pressure Anesthesia" and High-pressure as Compared with Other Pain-preventing Methods," and the discussions to follow, will set forth all that is known of importance in this connection.

There will be about fifty clinics selected and arranged to give the knowledge seeking dentists the best post-graduate course that can possibly be obtained in a three days meeting. One session will be devoted to the study of manufacturers' exhibits. The exhibits this year are to be one of the interesting features of the meeting, and the committee has been promised one of the largest exhibits shown in the country.

All communications pertaining to clinics or exhibits should be addressed to the corresponding secretary, Dr. W. G. Ebersole, 800 Schofield Building, Cleveland, Ohio.

Special rates of a fare and a third have been granted on the certificate plan by the Central Passenger Association.

The committee extend a most cordial invitation to the members of the profession to attend.

Signed,

W. G. EBERSOLE,
GEO. H. WILSON,
VARNEY E. BARNES,
Executive Committee.

OHIO STATE BOARD OF DENTAL EXAMINERS.

The regular semiannual meeting of the Ohio Board of Dental Examiners will be held in Columbus, June 27, 28, 29, 1905, at the Hartman Hotel.

Applications for examination should be filed with the secretary before June 17th. For further information address,

185 E. State Street, Columbus, O. H. C. BROWN, *Secretary.*

THE LEWIS AND CLARK DENTAL CONGRESS.

PORTLAND, OREGON, JULY 17, 18, 19, 20, 1905.

The armory of the Oregon National Guard will be the meeting hall of the Lewis and Clark Dental Congress. It is the largest armory west of Chicago and St. Louis. It is 200x200 feet, first story of stone, second story of brick, provided with all modern conveniences.

The location is very central—eight squares or blocks from all large

hotels, post-office, railroad terminal depot and active center of city. (City squares or blocks are 200 feet in length.)

The Assembly hall, where the general meeting takes place, is 60x100 and will accommodate 1,000 people. The Exhibit hall, where the manufacturers' exhibits and professional clinics take place is 100x200 feet, contains 20,000 square feet of space, is located on the ground floor, and in north end of building, where the daylight facilities are first class.

HOTELS AND RATES.

Special low rates will be given by hotels during the Congress. Hotel Portland, \$2.50 to \$3.50 single, \$5.00 to \$6.00 double. Hotel Imperial, \$2.00 to \$4.00. Hotel Perkins, \$2.00 to \$4.00. Private hotels from \$1.50 per day up; 5,000 rooms in private families convenient to Armory at \$1.25 per day, single room. The Exposition Accommodation Bureau can reserve accommodations for any one desiring to secure them in advance.

FEATURES OF THE PROGRAM.

The essays at the Lewis and Clark Dental Congress will be by the leading men in the dental and medical professions of the United States and Europe. Essayists are being selected with a view of making this part of the program unique and original in character. Symposiums on various subjects will be given. There will be no sections in the meeting, all of the essays being delivered before the entire Congress.

During the four days that the Congress will be in session, there will be one hundred and fifty professional clinics given by dentists from every part of the world. The clinical program will be a large feature of the Congress, and clinicians have been secured to demonstrate every operation in the range of our profession, especially the newest and the latest methods in both operative and prosthetic work. The clinical program is receiving additions daily.

There will be fifty or more exhibits, covering 15,000 square feet, comprising every variety of dental goods made, and there will be clinical demonstrations by manufacturers of every dental appliance and specialty on the market.

Railroad rates will be low—\$56.00 round trip from Chicago, \$45.00 from Missouri river, one-half regular fare from territory in the scope of the Lewis and Clark Exposition.

The membership ticket, which entitles the holder to all privileges, will be five dollars (\$5.00).

POINTS OF INTEREST AND EXCURSION TRIPS.

To those visiting Portland in 1905 will be given a great opportunity for vacations of exceeding interest and variety. From almost any point in the city four mountains (snow-caped the year around) of the Cascade Range may be seen.

Mt. Hood, 11,000 feet in height, may be reached by boat or rail, spending two nights at Cloud Cap Inn at snow line, 6,000 feet above sea level, where excellent service is maintained during the summer.

The round trip of the upper portion of the Columbia River (the greatest natural scenic river in the world) may be made in one day.

The trip down the Columbia River to the Pacific Ocean may be made in five hours. Hotel accommodations at the beaches are the best. Meals and service unsurpassed.

More extended excursion trips may be taken either before or following the meeting of the Congress.

Puget Sound by rail is six hours from Portland. One of the delightful trips from Seattle is by boat through the Sound to Victoria and Vancouver, B. C. The excursion trip to Alaska consumes eleven days for the round trip from Seattle, and is one of great interest.

Those traveling by the Northern routes may see the Canadian Rockies by taking the Canadian Pacific railway from Vancouver, B. C., or Seattle, Wash., and Yellowstone Park may be visited from the line of the Northern Pacific railroad.

Those going south may see the famous Willamette Valley, the most productive valley in the west, as well as Mount Shasta. This is by the Southern Pacific railroad to San Francisco, the "Shasta Route."

On the way to San Francisco or from that city, Yosemite Valley may be visited—a trip that is most artistic in scenery and wonderful in the expressions of nature.

While in the City of Portland, visitors may see the Lewis and Clark Fair, a \$30,000,000 Exposition, and the largest held in the United States for the past thirty years, excepting Chicago, 1893, and St. Louis, 1904. The Exposition will not interfere with the Congress, however, as the Armory is in the center of the city and the Exposition grounds are three miles out.

NORRIS R. COX, D. D. S., *Chairman*,
Abington Building, Portland.

ARTHUR W. CHANCE, D. D. S., M. D., *Secretary*.
809-810 Dekum Building, Portland.

NOTICE TO OHIO DENTISTS.

Those desiring to make application for membership to the Lewis and Clark Dental Congress to be held at Portland, Oregon, July 17, 18, 19 and 20, 1905, should communicate with the undersigned, who will furnish blanks, and endorse same, for the ethical profession of the State. The membership fee is \$5.00.

I am informed by the Secretary of the General Committee that a copy of the full proceedings of the Congress will be furnished to its members.

H. C. BROWN, *Membership Committeeman for Ohio*.
185 East State Street, Columbus, Ohio.

NATIONAL DENTAL ASSOCIATION CLINIC.

The National Dental Association will meet at Buffalo, New York, commencing July 25th. It is the desire of the president and chairman of the clinic section to hold the best clinic in the history of the society. The clinics will be held Wednesday and Thursday, July 26th and 27th, in the Buffalo Dental College, where there is every facility for making practical operations, as well as ample room for all those wishing to give table clinics. Forty dental operations will be made each day, and there is room for holding three hundred table clinics. Those interested can apply to

Dr. S. W. Bowles, 1315 New York avenue, Washington, Chairman for District of Columbia, Delaware and New Jersey.

Dr. E. C. Blasdell, 1 Pleasant street, Portsmouth, N. H., Chairman for Maine, New Hampshire and Vermont.

Dr. F. W. Gethro, 31 Washington street, Chicago, Chairman for Illinois and Wisconsin.

Dr. L. L. Barber, Spitzer Building, Toledo, Ohio, Chairman for Ohio and Indiana.

Dr. S. Eschelmann, 421 Franklin street, Buffalo, N. Y., or

Dr. R. Murray, 715 Elmwood avenue, Buffalo, N. Y., Chairman for New York and Ontario, Canada.

Dr. M. F. Finley, 1928 First street, Washington, D. C., Chairman for District of Columbia, Virginia and West Virginia.

Dr. T. P. Hinman, 22 S. Broad street, Atlanta, Ga., Chairman for Georgia, North Carolina, South Carolina, Florida, Alabama, Mississippi, Tennessee, Louisiana and Texas.

Dr. H. B. McFadden, 3505 Hamilton street, Philadelphia, Pa., Chairman for Pennsylvania.

Dr. G. E. Savage, 518 Main street, Worcester, Mass., Chairman for Massachusetts, Connecticut and Rhode Island.

Dr. S. H. Voyles, 3201 Washington avenue, St. Louis, Mo., Chairman for Missouri, Arkansas, Kansas and Nebraska.

Those having new instruments, appliances, etc., are cordially invited to display them. Communicate with your State Chairman.

E. K. WEDELSTAEDT,
Secretary Clinic Section.

204 New York Life Building, St. Paul Minn.

NEW JERSEY STATE DENTAL SOCIETY.

The 35th annual meeting of the New Jersey State Dental Society will be held in the Auditorium, Asbury Park, N. J., commencing July 19th, and continuing until July 22nd. Headquarters at Hotel Columbia; rates per one person in room \$3.50, two persons in room, \$3.00. Meeting commencing promptly at 10 a. m., on the 19th. The various committees have

been successful in securing eminent practitioners for papers of present interest, some fifty clinicians in the most modern, up-to-date dentistry, and the space in the large auditorium most entirely filled with all the newest appliances to practice dentistry.

Friday evening will be devoted to the social side with a smoker, including a collation and entertainment to the guests, exhibitors and members.

Cut out now the week of July 17th, and meet with us; 756 dentists registered last July, make it a thousand this year.

CHARLES A. MEEKER, *Secretary*.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates for license to practice dentistry in Wisconsin, will be held in Milwaukee, June 26, 1905, at the Wisconsin College of Physicians and Surgeons, corner Fourth street and Reservoir avenue.

Applications must be made to the secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry consecutively for four years, or an apprentice to a dentist engaged in the reputable practice of dentistry for five years. For further particulars apply to

J. J. WRIGHT, *Secretary*.

1818 Wells Building, Milwaukee, Wis.

ILLINOIS STATE DENTAL SOCIETY.

The annual meeting of the Illinois State Dental Society will be held at Moline, May 9, 10, 11, 1905.

ELGIN MAWHINNEY, *Secretary*.

INDIANA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Indiana Board of Dental Examiners will be held in Indianapolis, June 13, 1905. A diploma or a certificate that the applicant has had five years in the office of a reputable practitioner of this State is necessary for admission to examination. For further information, address

DR. F. R. HENSHAW, *Secretary*.

Middletown, Indiana.

EASTERN INDIANA DENTAL ASSOCIATION.

The Eastern Indiana Dental Association will hold its 35th annual meeting at Greenfield, Ind., May 3-4, 1905. A splendid program of papers and clinics is being prepared.

G. E. STEVENSON, *Secretary*.

MINNESOTA STATE BOARD OF DENTAL EXAMINERS.

The Minnesota State Board of Dental Examiners will hold a special examination on June 5th, 6th and 7th at the Dental Department of the State University.

The secretary will be at the dental department on the afternoon of June 3rd to receive applications. All applications must be in by 5 p. m. of that date. Application blanks will be furnished upon request, by

F. S. JAMES, *Secretary*.

Winona, Minn.

SECTION ON STOMATOLOGY, AMERICAN MEDICAL ASSOCIATION.

The next meeting of the American Medical Association will be held in Portland, Ore., July 11 to 14, 1905. The program of the Section on Stomatology is as follows:

1. "Chairman's Address," Vida A. Latham, Chicago.
2. "The Causes and the Treatment of the Mouth Manifestations of Certain Metabolic Disorders," Alfred A. Croftan, Chicago.
3. "The Oral Manifestations of Diabetes Mellitus," Hermann Prinz, St. Louis, Mo.
4. "The Urine and Saliva in So-called Pyorrhea Alveolaris," Wm. J. Lederer, New York City.
5. "Further Researches in the Treatment of Interstitial Gingivitis," Eugene S. Talbot, Chicago.
6. "Excretion of Toxic Products into the Mouth with Relation to Local Infection," Fenton B. Turck, Chicago.
7. "The Relations of Dentistry to General Medicine," Samuel Hopkins, Boston, Mass.
8. "A Common Ground for Medicine and Dentistry," Frank L. Platt, San Francisco.
9. "The Physician as a Dentist," Calvin W. Knowles, San Francisco.
10. "The Physician's Duty to the Child from a Dental Standpoint," Alice M. Steeves, Boston, Mass.

11. "Dentistry of To-morrow," H. P. Carleton, San Francisco.
12. "What will Probably be the Dental Educational Standard for the Coming Decade," C. C. Chittenden, Madison, Wis.
13. "Fatal Oral Pothologic Conditions," G. V. I. Brown, Milwaukee, Wis.
14. "Surgical Bacteriology of the Mouth," A. H. Levings, Milwaukee, Wis.
15. "Surgical Aspects of Disturbed Dentition of the Third Molar," M. L. Rhein, New York City, New York.
16. "The Treatment of Suppurative Affections of the Face and Neck Emanating from the Mouth," M. I. Schamberg, Philadelphia.
17. "The Medical Relations of Certain Conditions of the Mouth," L. Duncan Bulkley, New York City.
18. "Some Effects of Inebriety on the Teeth and Jaws," T. D. Crothers, Hartford, Conn.
19. "The Ossification of the Lower Jaw," Edward Fawcett, Bristol, Eng.
20. "Ankylostomiasis and Tongue Pigment," T. M. Russell Leonard, Grenada, British West India.
21. "Notes on Tooth Genesis in Man," H. W. Marett Tims, London, Eng.
22. "The Etiology of Tooth Corrugations," G. Lenox Curtis, New York City.
23. "To what Extent are Teeth Necessary to the Human Being?" M. H. Fletcher, Cincinnati, Ohio.
24. "Anesthesia by Ethyl-Chloride and Similar Agents," H. C. Miller, Portland, Oregon.
25. "The Rontgen Rays in Dentistry," M. Kassabian, Philadelphia.

The program is entirely scientific. All dentists are invited to be present and take part in the discussions. Those wishing to become members may do so by filling out blanks furnished by the association, signed by the president and secretary of State or local dental or medical society, enclose five dollars and send to the secretary of the Section on Stomatology for his signature. This also includes the Journal of the American Medical Association for one year.

VIDA A. LATHAM, *Chairman.*

EUGENE S. TALBOT, *Secretary.*

NEBRASKA STATE DENTAL SOCIETY.

The next meeting of the Nebraska State Dental Society will be held in the Lincoln Dental College, Lincoln, Neb., May 16, 17, 18, 1905.

The Lindell Hotel will be headquarters for the visiting dentists. Do not fail to get a receipt from your local railroad agent, for the fare charged to Lincoln, as this is the only means by which you can secure the return rate.

H. R. HATFIELD, *Corresponding Secretary.*

NORTHERN OHIO DENTAL ASSOCIATION.

CLEVELAND, OHIO, JUNE 6, 7, 8, 1905.

PROGRAM.

Tuesday, June 6th, 10:00 a. m.

President's Address, W. T. Jackman, Cleveland.

Election of officers.

Tuesday, June 6th, 1:30 p. m.

1. "Application of High-pressure Anesthesia," Dr. C. G. Myers, Cleveland. Discussion opened by Drs. S. M. Weaver, J. B. Sapp, C. C. Mottinger, H. T. Billmeyer.

2. "High-pressure Anesthesia as Compared with Other Pain-preventing Methods," Dr. D. H. Zeigler, Cleveland. Discussion opened by O. N. Heise, H. C. Brown, W. I. Jones, J. C. McConkey.

3. "Diseases of the Peridental Membrane and Treatments," J. V. Stahl, Wooster, Ohio. Discussion opened by Drs. Frank Archer, W. H. Whitslar, C. I. Keeley, James K. Douglas.

Tuesday evening, visit to Luna Park.

Wednesday, June 7th, 8:30 a. m.

4. "Mistakes of the Country Dentist," Dr. R. D. Wallace, Scio, Ohio. Discussion opened by W. T. Binzley, W. Buzzell, F. E. Renkenberger, Henry Barnes.

5. "Mistakes of the City Dentist," Dr. F. J. Spargur, Cleveland. Discussion opened by Drs. H. C. Kenyon, G. S. Junkerman, J. W. Harris, W. M. Megginson.

6. "Mistakes in Ethics," Dr. S. H. Guilford, Philadelphia. Discussion opened by J. W. Van Doorn, H. E. Dunn, W. T. Jackman, L. L. Barber.

Wednesday, June 7th, 1:30 to 6:00 p. m., exhibitors' session.

Wednesday evening, banquet, Hotel Euclid.

Thursday, June 8th, 1:30 p. m.

7. "Two Sources of Tooth-life and their Relative Importance," Dr. D. D. Smith, Philadelphia. Discussion opened by Drs. I. W. Brown, E. B. Spalding, F. W. Knowlton, L. P. Bethel.

DISCUSSION OF CLINICS.

CLINICS.

Thursday, June 8th, 8:30 a. m.

1. "Nitrous Oxide Anesthesia for Removal of Adnoids and Tonsils," Dr. W. R. Lincoln, Cleveland.

2. "The Extraction of Teeth under Prolonged Anesthesia with Nitrous Oxide and Oxygen Administered through the Nose," Dr. Chas. Teter, Cleveland.

3. "A New Anesthetic," Dr. E. W. Dodez, Ft. Wayne, Ind.

4. "Showing Case Operated on Last Year for Deflected Septum of the Nose," Dr. R. D. Fry, Cleveland.

5. "High-pressure Anesthesia," Dr. W. E. Newcome, Cleveland.
6. "Pressure Anesthesia," Dr. J. B. Sapp, Cleveland.
7. "Gold Fillings, using High-pressure Anesthesia in Preparing Cavity," Dr. Carolyn M. Goodwin, Chardon, O.
8. (a) "Method of Filling Approximal Cavities in the Front Teeth, Upper and Lower, Without Wedging and Without Showing Gold," (From 8 to 10:30.) (b) "Showing Instruments and Methods of Operating in Oral Prophylaxis, presenting a Patient, together with Models, Showing what has been Accomplished in the Treatment of Pyorrhea." (From 10:30 to 12:00.) Dr. D. D. Smith, Philadelphia.
9. "Soft Foil," Dr. G. S. Junkerman, Cincinnati.
10. "Tin and Gold Filling," Dr. W. A. Siddall, Cleveland.
11. "Annealed Tin with Gold," Dr. W. M. Megginson, Toledo, O.
12. "Showing What Can Be Done with Amalgam," Dr. P. O. Parsons, Cleveland.
13. "Gold and Amalgam Fillings without Undercuts or Retaining Pits," Dr. H. W. Cole, Akron, O.
14. "All-porcelain Jacket Crowns," Dr. E. B. Spalding, Detroit, Mich.
15. "Porcelain Inlays with Pyrometer Furnace," Dr. Weston A. Price, Cleveland.
16. "A Positive Method in Manipulating Matrix in Inlay-work," Dr. F. S. Morrison, Martins Ferry, O.
17. "Porcelain Inlay," Dr. E. H. Shannon, Cleveland.
18. "Pressure in the Construction of Porcelain Crowns," Dr. C. S. Starkweather, Bellaire, O.
19. "Swaging with Moldine, both the Matrix for Gold Inlay and Backing for Facings," Dr. James K. Douglass, Sandusky, O.
20. "Technic of Gold Inlay," Dr. Henry Barnes, Cleveland.
21. Subject to be announced, Dr. J. W. Fairbanks, Youngstown.
22. "Cavity Preparation," Dr. Geo. Woodbury, Cleveland.
23. "Something of Interest from the Standpoint of the Orthodontist," Dr. L. P. Bethel, Columbus.
24. "Occlusion of Seamless Gold Crowns," Dr. A. M. Coates, Toledo, Ohio.
25. Subject to be announced, Dr. J. D. Nelson, Willoughby, O.
26. Subject to be announced, Dr. C. L. Frame, Columbus.
27. "Manipulation," Dr. Gale French, Pittsburg.
28. Subject to be announced, Dr. D. H. Henninger, Akron.
29. "Some uses of the Expansion Arch in Orthodontia," Dr. F. M. Casto, Cleveland.
30. Subject to be announced, Dr. E. E. Chambers, Warren, O.
31. "A New Gold," Dr. Chauncy A. Flower, Kittanning, Pa.
32. Subject to be announced, Dr. W. S. Sykes, Cleveland.
33. "The Use of the Electric Current in Gold Soldering with Special Device for that Purpose," Dr. L. L. Bosworth, Cleveland.
34. Subject to be announced, Dr. F. S. Manchester, Canton, O.
35. "Some Skiagraphs, Showing Value of the X-Ray in Dentistry," Dr. E. B. Lodge, Cleveland.

36. Subject to be announced, Dr. C. O. Brown, Youngstown, O.
37. Subject to be announced, Dr. J. E. Phelps, Chagrin Falls, O.
38. Subject to be announced, Dr. W. A. Nichols, Medina, O.
39. Subject to be announced, Dr. R. A. Suhr, Cleveland.
40. "Constructing Crowns and Bridges with the Over-top Detachable Tooth," Dr. Miles Loeb, Cleveland.
41. Subject to be announced, Dr. Hamilton F. Strong, Cleveland.
42. "Waste-cotton Receiver," Dr. W. B. Tiffany, Clyde, O.
43. Subject to be announced, Dr. J. G. Wherry, Elyria, O.
44. "Construction of Porcelain Bridge," Dr. Jas Lochhead, New Haven, Conn.
45. "Demonstration of Inlay Cavities, using Enlarged Models," Dr. H. C. Kenyon, Cleveland.



AFTERMATH

Changed Location.—Dr. Charles W. Bruner, formerly of Toledo, Iowa, is now located in Waterloo, Iowa.

Dentist Hurt.—Dr. R. D. Duncan, of McKeesport, Pa., fell from a step-ladder March 31st, fracturing his right leg in two places.

Dr. Ramsey Reappointed.—Doctor Ramsey, of Grand Forks, N. D., has been reappointed on the State Dental Board.

Dentist Goes to California.—Dr. F. W. Shores, of Saginaw, has disposed of his office and left for Oakland, Cal., where he will locate.

Married.—Dr. V. M. Gregg and Miss Nettie Appleby, both residents of Eaton, O., were married in Covington, Ky., March 16, 1905.

Gas Proves Fatal.—Mrs. Rebecca Kolish, of New York, died of heart disease, March 19th, after taking gas for the extraction of a tooth.

Cocaine Kills Man.—Silas Johnson, of Norfolk, Neb., aged 35, died from the effects of cocaine administered while having three teeth extracted. It is thought the drug worked its way to his heart.

Dr. Todd Receives Appointment.—Governor Johnson, of Minnesota, has announced the appointment of Dr. George S. Todd, of Lake City, as a member of the State Board of Dental Examiners.

Aged Dentist Honored.—Dr. F. D. Nellis, of Syracuse, N. Y., believed to be the oldest member of any dental society, was given a complimentary dinner, March 8th, by the Syracuse Dental Society.

Dentist Fatally Injured.—Dr. A. C. McFall, of Mayfield, Ky., aged 70 years, fell from a second-story window, March 28th, and was fatally injured.

Verdict Against Dentist.—Judge Hosea, of Cincinnati, O., returned a verdict of \$3,500 for Chas. McKeag against Doctor Shober. The action was for \$5,000 for alleged malpractice.

New Mexico Has Dental Board Appointed.—The names of the Board of Dental Examiners of New Mexico are as follows: L. H.

Chamberlin, of Bernalillo; C. N. Lord, of Santa Fe; F. E. Olney, of San Miguel; A. A. Bearup, of Eddy; E. L. Hammond, of San Miguel.

Dentist Honored.—Dean Edward C. Kirk, of the Dental Department of the University of Pennsylvania, has been awarded a gold medal of merit by the "Societe d'Odontologic de Paris" for the best original research in dental surgery.

Dentist Acquitted.—Dr. W. E. Black, who has been on trial at Wagoner, I. T., for the murder of W. L. Greer, has been acquitted. Black admitted the killing but pleaded the right to defend his honor and his home.

Two St. Louis Dentists Fined.—H. P. Collier, of St. Louis, was fined \$25 and costs on two charges, that of holding no State certificate and not being registered. Dr. B. R. Kidd, of East St. Louis, was also arrested for practicing dentistry illegally. He was also fined.

Affected Tooth Proves Fatal.—Wm. Kelly, of Altoona, Pa., a printer, aged 46, died March 19th from the effects of an abscessed tooth. His face began to swell, the swelling gradually working its way down under his chin, the swelling becoming so great that he strangled to death.

Dentist Invents Voting Machine.—Dr. F. S. Thornley, a young dentist of Pierre, South Dakota, has just patented a voting machine which is provided with the best of self-locking devices and which judging from frequent tests, it is impossible to so manipulate it as to produce fraudulent votes.

Dentist Sues Railroad.—Dr. Higgins, of Kansas City, sued the Santa Fe railroad for \$10,000 damages received while enroute to Emporia. His arm was broken by the mail crane. A small verdict was given by the jury to cover his doctor bills and other incidentals caused by the accident.

Runaway Horses Wreck Dental Office.—The dental office of Dr. Benson, of Hornellsville, N. Y., was badly wrecked by a team of horses which had become frightened and dashing through the bay window. Operating chair and surgical instruments were demolished and the office left in ruins.

Nebraska Has New Dental Law.—The new law requires examination on diploma and certificates will no longer be granted on diploma without examination. The license fee has been raised from \$2 for all dentists to \$10 for graduates of Nebraska colleges and \$25 for graduates in other States. A reciprocity clause is also included in the law.

Made Insane by Nitrous Oxide.—Miss Lampson, of Iona, Mich., is insane, from the effects of taking nitrous oxide gas while having several teeth extracted a year ago. Her malady takes the form of a

nervous disorder. She awakens in the night and runs out on the street in the wild hallucination that she has never recovered from the anesthetic.

Colored Dentists Meet.—The National Association of Colored Dentists began its annual convention in Washington, D. C., March 6th. The present officers are: Dr. A. J. Gwathney, president; Dr. R. J. Baker, Baltimore, first vice-president; Dr. A. R. Taylor, Pittsburg, second vice-president; Dr. C. C. Fry, secretary, and Dr. W. S. Lofton, treasurer.

Fires.—Dr. E. L. Hanes' dental office, Griffin, Ga., damages \$1,000, insurance, \$500. Dr. Brand's dental office, Urbana, O., damaged by fire, loss not estimated. The home of Dr. Daniel Williamson, of Ridgwood, N. J., was destroyed by fire March 5th; loss \$10,000, fully insured. Dr. G. W. Reelhorn's dental office, Kirkersville, Ohio, loss \$500, fully insured.

Death Caused by Scratch on Finger from Broken Tooth.—Dr. Henry A. Downing, a dentist, of Cincinnati, died April 13. Christmas he scratched his finger on the tooth of a patient. Blood poison set in, then paralysis and finally the doctor's mind began to wander. For weeks he suffered the most intense pain and was unconscious most of the time. He was 68 and had practiced in Cincinnati for 30 years.

Died in Dentist's Chair.—During an operation for the extraction of a tooth, Mrs. William Becker, twenty-six years old, of Cleveland, died March 8th, under the influence of an anesthetic. She engaged a dentist to come to her home for the operation, a physician was also engaged to attend her. Hardly had the chloroform been administered when she passed away. An autopsy was performed by Coroner Siegelstein, which revealed a diseased condition of the woman's heart.

May Practice Dentistry.—The Wisconsin State Board of Dental Examiners has announced the successful candidates for certificates at their February examination as follows: W. H. McWilliams, Darlington; O. R. Schroeder, Tomah; John I. Matthews, Chicago; Otto F. E. Hoya, Milwaukee; H. A. Carson, Elkhorn; W. E. Gochenour, Portage. Eleven took the examination. The board will meet again in June.

Decayed Tooth Kills Girl.—Decay of a tooth, followed by ulceration and then septic poisoning, brought about the death of Isabelle Martin, of West Hoboken, N. Y., after an illness of two weeks. When the tooth was extracted it was found the jaw bone was badly affected, and two more operations were necessary. Then Doctor German was called in and advised that the girl be sent to Christ Hospital, where she died April 1st.

Montana State Society Officers.—The Montana State Dental Society at its convention in Butte last week, elected the following offi-

cers: President, Dr. T. M. Hampton, of Helena; first vice-president, Dr. J. T. Waite, of Helena; second vice-president, Dr. D. J. Macdonald, of Anaconda; secretary, Dr. A. D. Galbraith, of Butte; supervisor of clinics, Dr. S. Keyser, of Butte. It was decided to hold the next convention at Great Falls.

Dentists form Organization.—The Southern Indiana Dental Association has been organized in Paoli and the following officers elected: President, Dr. E. S. Denbo, Orleans; vice-president, Dr. C. D. Driscoll, Paoli; secretary, Dr. Vanosdol, Mitchell; assistant secretary, Dr. F. E. Woods, French Lick Springs; treasurer, Dr. C. B. Tattershall, Paoli. Dr. G. W. Taylor, of Orleans, was appointed chairman of the committee on future advancement.

Burglaries.—Dr. L. M. Breck, El Paso, Texas, \$75. Dr. Oscar R. Schroeder, Tomah, Wis., quantity of gold filling material. Doctor Bailey, Chippewa Falls, Wis., gold crown and filling material. Dr. R. W. Bingham, Eau Claire, Wis., gold. Dr. H. E. Branstad, Eau Claire, Wis., gold. Dr. Arthur A. Camerer, New York, N. Y., \$50. Dr. A. J. Flanagan, Springfield, Mass., loss \$116. Dr. L. Y. Schermerhorn, Springfield, Mass., loss \$40.

Seventh District Society Officers.—The Seventh District Dental Society adjourned March 29th after the election of the following officers: President, C. C. Bachman, Waterloo; vice-president, C. F. Bunbury, Rochester; recording secretary, C. W. La Salle, Rochester; corresponding secretary, G. G. Burns, Rochester; treasurer, L. Requa, Rochester; member board of censors, F. Messerschmitt, Rochester; delegates to state society meeting, L. W. Smith, Lyons, and G. B. Mitchell, Rochester.

Odontological Society of Western Pennsylvania.—At the session of the Odontological Society of Western Pennsylvania the following officers were elected: President, W. S. Cook, Beaver Falls; vice-president, Dr. W. L. Haines, Pittsburg; secretary, B. M. Loar, Mt. Pleasant; treasurer, Dr. J. A. Libbey, Pittsburg; executive committee, Dr. C. C. Taggart, Pittsburg; Dr. M. S. Burns, Sewickley; Dr. D. W. Flint, Pittsburg; board of censors, Dr. H. H. Harrison, Dr. K. S. Perry, Dr. O. L. Hertig.

New Dental Law for New Mexico.—The act provides that a candidate for examination shall present his diploma from a reputable dental college or the affidavit of three reputable dentists within the territory, of three years' standing, as to his qualifications. It also provides that all licensed dentists in the territory shall register with the secretary of the territorial dental board, on or before June 1st of each year, and shall pay an annual fee of \$3. The dental board shall have power to revoke the licenses of all dentists failing to register within thirty days after written notice to do so.

False Teeth Removed from Oesophagus.—Charles H. Niehaus, a sculptor, is slowly recovering at the Polyclinic hospital, New York, from the effects of a singular accident. That he is alive and on his road to recovery is due to a rare and masterly operation. Six weeks ago in Cincinnati, Niehaus, in a fit of laughter, swallowed two false teeth and the wide rubber plate to which they were attached. Niehaus reached New York nearer dead than alive late last week. Sunday afternoon an operation was successfully performed, removing the false teeth that were embedded in the oesophagus far down behind the breast bone.

Breaking of Tooth Menaces Eyesight.—Dr. Louis H. Kraft, of Collinsville, met with a severe accident while extracting a tooth, March 28th. As the tooth came out the pressure of the forceps crushed the shell and it burst into tiny bits. Half a dozen of these infinitesimal fragments struck the doctor's left eyeball. He thought nothing of it, but the next day the eye had swollen so much that his physician advised him to hasten to a specialist. The decayed fragments had infected the eyeball, and within a day more would have caused loss of sight. The places were cauterized with a white hot platinum wire and Doctor Kraft is recovering rapidly.

Dentist Loses an Eye Through Accident.—Dr. F. D. Miner, one of the dentists of Clinton, Ia., met with a painful and serious accident. While knocking some nails from an old building, April 3rd, the hammer he was using broke, a piece striking his left eye. Although it was very painful, nothing serious was anticipated until the next night, when the eye became so inflamed the doctor here advised him to see a specialist. He went to Cedar Rapids, where the doctor found it necessary to remove the eye in order to save the other one. He was taken to St. Luke's hospital and the operation was performed very successfully.

Vermont State Dental Society.—At the 29th annual meeting of the Vermont State Dental Society held at Rutland, March 15-17th, the following officers were elected for the ensuing year: President, Dr. George F. Barber, Brattleboro, first vice-president, Dr. George O. Mitchell, St. Albans; second vice-president, Dr. C. H. Kent, Barre; secretary, Dr. Thomas Mound, Rutland; corresponding secretary, Dr. Grace L. Bosworth, Rutland; treasurer, Dr. W. H. Munsell, Wells River; executive committee, Dr. Harry F. Hamilton, Newport; Dr. Charles F. Meacham, Bellows Falls; Dr. A. Z. Cutler, Bennington, State prosecutor, Dr. J. A. Robinson, Morrisville. The next meeting will be held in Brattleboro, the third Wednesday in May, 1906.

Dr. George Edwin Hunt, a Writer of Fiction.—Regarding the new line that George Edwin has added to his accomplishments the Indianapolis News says: "Dr. George Edwin Hunt, who runs the Indiana Dental College, and a new gasoline automobile as a side line, being engaged besides in trying to reform municipal politics, and a few

other things, has blossomed out as a writer of short stories. In the April magazines he has two stories, "How Billy Won the Race" in Ainslee's, and "The Capitulation of Captain Gethro," in the Popular Magazine. Leslie's has also accepted one of his stories for early publication. Doctor Hunt's stories are in a humorous vein, and show much originality."

Blacksmith to Extract Teeth.—The application by a blacksmith to Doctor Thomas Mound, president of the Vermont Dental Association, for a second-hand pair of forceps in order that he might pull teeth in his native town, Salisbury, is one of the queer outcomes of a law passed by the State legislature last fall, and over which the members of the profession in the State are in a quandary. The law was framed at the suggestion of the dental society, but the solons saw fit to tack on an additional clause which allows any person to extract teeth whether they have studied dentistry or not. The feature of the law which interests the dentists is that it perfects a long cherished plan to enable Vermont to issue dental licenses that will be recognized in other States and to give similar courtesy to licenses issued in other commonwealths. Such an arrangement has already been made with the New Jersey Dental Society, and plans are under way to include other States.

Deaths.—Dr. J. W. Stonaker, of Chicago, died March 24th in Denver, where he had gone hoping to regain his health. Dr. Oliver Ingram, of Hermann, Mo., died February 25th in St. Louis, Mo., consumption having caused his death; age 29 years. Dr. George Foote Stevens, of Jersey City, N. J., died March 27th, age 34 years. Dr. James R. Maguire, of Lewistown, Ills., died April 1st of diabetes, age 37 years. Dr. J. H. Taylor, of Owensboro, Ky., age 69 years. Dr. Clark L. Goddard, of San Francisco, died March 30th of heart disease. Dr. E. J. Wayne, of Cleveland, died April 2nd of paralysis, age 76 years. Dr. Wm. C. Detwiler, of Eaton, O., died March 22nd of paralysis, age 74 years. Dr. Martin C. Johnson, of Minneapolis, Minn., died March 6th. Dr. Wm. S. Depew, of Jamestown, N. Y., died March 5th in Tampa, Florida, age 40 years. Dr. E. H. Schultze, of San Francisco, committed suicide in February by jumping from a ferryboat into the bay. Poor circumstances is said to have caused despondency. Dr. J. E. Barricklom, Columbus, Ohio, died in April.

Montana State Dental Society.—The Montana Dental Society met in Butte, February 20th and 21st, and the meeting was very successful. This being the second annual meeting, it was a matter of query as to the future success of the society. They have fifty-one members now, and have good expectations of making it one hundred by next meeting, February 23rd and 24th, '06. Doctor Prothero, of the Northwestern University of Chicago, was present and gave very beneficial clinics, both chair and table in porcelain. The main point achieved, was the correction of some of the clauses in the State Dental

Law, and after this year, they have every reason to believe the legislature will revise it so that only graduates of reputable dental colleges will be eligible for examination before the State Board of Examiners. The following officers were elected: President, Dr. T. M. Hampton; first vice-president, Dr. D. J. Waite; second vice-president, Dr. D. J. McDonald; secretary, Dr. A. D. Galbraith; treasurer, Dr. W. A. Allen.

Patents of Interest to Dentists Recently Granted.—

783358—Tooth-crown anchor, Samuel S. Bloom, Philadelphia, Pa.

783327—Dental root-impression and swaging instrument, Adelbert W. Starbuck, Iowa City, Iowa.

783609—Tooth-regulator, John E. Canning, Denver, Colorado.

783959—Dental separating disk, Roscoe H. Hull, Worcester, Mass.

783804—Dental measuring instrument, Lawrence A. Smith, Port Gibson, Miss.

784098—Dental root extractor, Walter S. Beazley, Lancaster, Ky.

784060—Manufacturing dental plates, Jean P. Matheret, Paris, France.

785018—Dental forceps, Ira P. Norton, Laporte, Indiana.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall building, Washington, D. C.





REGULAR CONTRIBUTIONS

HOW MUCH ORTHODONTIA SHOULD THE GENERAL PRACTITIONER DO?*

BY MARTIN DEWEY, D. D. S., M. D., GRAND RAPIDS, MICHIGAN.

The practice of orthodontia is by no means new, as we find the first text-books on dentistry contained chapters on the "correction of irregularities of the teeth;" but it is within the recent years that we find interest has increased to such an extent that any dental journal you may pick up almost invariably contains articles on orthodontia. The cause of this new and increased interest in the subject of orthodontia is the fact that orthodontia has established itself as a *specialty of dentistry*. No one thing has done more toward establishing orthodontia as a specialty than the organization of the American Society of Orthodontists.

When the society was first organized, the "wiseacres" of dentistry said the society could not exist because orthodontia was too limited a subject to support a society of its own. The growth of the society has been steadily onward and upward until we find, at the recent International Dental Congress, the section of orthodontia was the most successful of them all.

Since orthodontia has established itself as a *specialty of dentistry*, the question naturally follows, "What will be the attitude of the dental profession toward orthodontia in its proper sphere?" Will the profession continue to do orthodontia in the future as it has in the past and is doing in the present, or will it confine itself to operations in general dentistry for which it is better fitted?

*An address delivered before the Southwestern Michigan Dental Society, April 11 and 12, 1905.

Whatever the attitude of the dental profession may be it will necessarily be governed by the attitude of the individual practitioner. In other words, "How much orthodontia should the general practitioner do?" To answer this question in a few words, I will say, "Not any!" My reason for answering the question in this manner is the fact that orthodontia has been and is yet a neglected subject in the dental college curriculum; lectures on this subject are generally given by some one occupying some other chair in the college. Those lectures are generally on "How to construct regulating appliances," "The taking of modeling compound impressions," and "The extraction of teeth for the correction of malocclusions," and "When and what teeth to extract." The result of such teaching has been the extraction of any tooth from the third molar to the central incisor. We still find prominent men, high in the profession of dentistry, advocating the extraction of the first permanent molar for the *correction* of malocclusion of the anterior teeth. I will say the case never did exist in which the occlusion of the anterior teeth was benefited by the extraction of the first permanent molar; not only was there failure to benefit the existing malocclusion, but the patient's *facial outline was spoiled* and the *condition complicated* by the production of a *malocclusion of the molar region*.

We also find the theory of inherited malocclusions is still taught by some men. They claim that the "intermarriage of types," "mixing of races," and the "inheritance of large teeth and small jaws" cause a large percentage of malocclusions. The theory in itself is faulty, because the tendency of nature is to harmonize conditions. If we see a deformity existing in the teeth and jaws, why would not a like condition exist in other parts of the anatomy? For example, why would we not see large fingers on small hands or large finger nails on small fingers? If the child would inherit large teeth and small jaws, why would you not see equally as many cases of small teeth and large jaws? But we find the result of this teaching is, that dentists have practiced the extraction of teeth for the correction of malocclusions, claiming that the case could not be otherwise treated because of this inherited condition. We even find men have gone so far as to extract some of the anterior teeth for the correction of malocclusion, justifying their acts by claiming the teeth were too large for the arches. Consequently

a great deal of harm is still being done by those who are attempting to correct malocclusion by extraction. Not only do they fail to obtain normal occlusion, but the condition is often made worse from the standpoint of an ideal arrangement of the teeth; and they furthermore produce harm by spoiling the facial outline of the patient. It is the result of seeing so *many of these failures*, the result of the *harm* that is being done, and the needless *sacrifice* of teeth that has caused me to say that the general practitioner should abandon the practice of orthodontia as a general rule.

Another reason why the general practitioner should confine himself to the practice of general dentistry is the fact that it is impossible to successfully practice orthodontia in connection with other practice. Like oil and water, they refuse to mix. He will either neglect his general practice or his orthodontia patients. He may set aside certain hours of the day and faithfully promise himself that he will do nothing but orthodontia during that time, but the first thing he knows his general practice has crowded into the time set aside for the treatment of cases of malocclusion. He will have a patient in the chair, making a gold filling, when the orthodontia patient comes in. He cannot ask the patient to sit in the chair with the rubber dam on while he waits on the patient with the malocclusion. He tells the orthodontia patient to come back tomorrow; but tomorrow the patient has a ticket to the matinee or other social engagement, so the appointment is lost entirely. The result is that the dentist becomes discouraged, the patient becomes discouraged, and so the appliance is removed before the case is completed and another failure is recorded. It is also impossible for the general practitioner to acquire the same technical skill by devoting a few hours each day to the practice of orthodontia that a specialist would by devoting his entire time to it. The general practitioner may possess a good knowledge of modern orthodontia, but unless he possesses the technical knowledge his operations will necessarily be second-class. You have no right to ask your patients to be content with operations in orthodontia which are not the best, any more than you have the right to ask them to be content with second-class work in operative dentistry or crown and bridge-work. The general practitioner, not possessing the required skill, will necessarily have to treat cases at a financial loss. It would be dollars and cents to his advan-

tage if he would confine himself to the field of general dentistry and recommend patients in need of orthodontia treatment to one who devotes his entire time to the treatment of malocclusions.

But the usefulness of the general practitioner in orthodontia still exists. On him depends to a great extent the rapidity with which orthodontia will develop as a specialty. His usefulness to orthodontia in the future will be that of advisor. It will be he who will first see the patients suffering from malocclusions, and in order that he may give good advice he must necessarily be familiar with normal occlusion, recognize the relation the teeth of one arch bear to the other, also be familiar with the laws of normal occlusion. He must be familiar with the temporary teeth as possible factors in the production or prevention of malocclusion of the permanent teeth. He must also recognize patients suffering from nasal obstructions, advise early treatment of the difficulty so as to obtain the best results from the standpoint of occlusion and facial art. When the dentist becomes familiar with the principles of modern orthodontia we will see fewer failures such as the treatment of cases in which the malocclusions of the upper arch have been corrected without any consideration being taken of the lower arch. The question may be raised that the general practitioner is forced to do some orthodontia because the specialists are too few. Whenever the dental profession shows a greater tendency toward recommending patients suffering from malocclusions to men devoting their entire time to the treatment of such cases, specialists will become more numerous, and until that time the general practitioner who attempts to do orthodontia must be sure that anything he does will not be of such a nature as to produce harm in after years. He must not forget that the so-called simple case of malocclusion in which he sees only a "crooked tooth" is but the symptom of some greater trouble. That a tooth crowded out of the arch is but the symptom of a greater malocclusion. He should avoid extraction for the correction of malocclusions and all cases which he treats must be toward the high ideal of normal occlusion and improved facial outlines, and when he has obtained these results he has obtained the best results possible in modern orthodontia.

RETENTION OF ARTIFICIAL DENTURES.

BY GEORGE H. WILSON, D. D. S., CLEVELAND, OHIO.

THIRD PAPER.

Assuming that a perfect plaster impression and a properly formed cast has been obtained, the prosthetist has as solid a foundation upon which to construct his superstructure as it is possible to obtain.

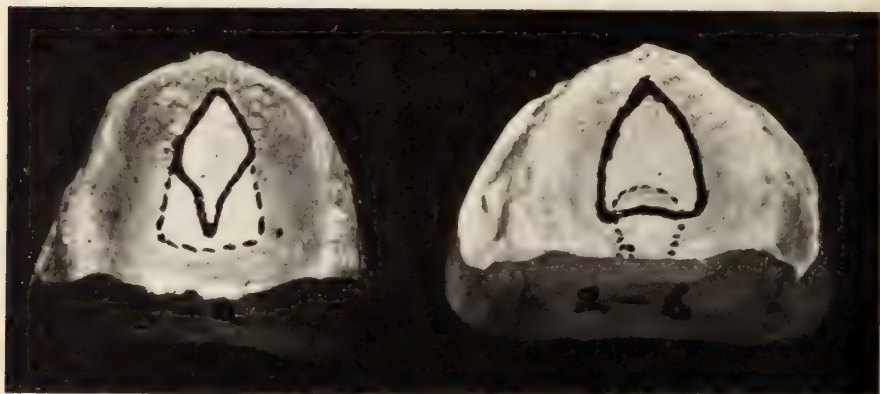
A visual and digital examination of the remaining teeth, the alveolar process, arch, vault, mucous tissue, oral secretions and contiguous muscles should be made with a mental, or better,



a written note of the same. The prosthetist after studying the existing conditions, should devise a definite plan for retaining the denture.

As an aid in the study of retention we will classify the methods for retention under two general headings: First, by means of the soft tissue, and second, by means of the remaining teeth. The methods for retention included in the first class are: retention by contact, atmospheric pressure, and spiral-springs. Those included in the second class are spring-plates, various forms of clasps and ferrules. Often two or more methods may be combined and thus obtain the best results.

There is a mechanical force that has its influence upon all methods which must always be considered and properly estimated or what has otherwise been a well-conceived and executed plan for retention will come to naught. This mechanical force is leverage and may be considered as positive and negative; positive when the mechanism is so constructed that leverage aids in retaining the denture, and negative when it acts to displace the denture. The consideration of this force will not be discussed separately, but in connection with the various methods of retention.



RETENTION BY CONTACT.

This is the method by which most full and many partial dentures are retained. Where this means is adequate it is the least objectionable of the various methods. This force may be represented by a fractional part of an ounce or several pounds pressure upon a denture. The force is influenced somewhat by the shape of the arch and vault, but especially by the conditions of the soft tissue and the oral fluids. The oval-shaped arch and vault are most favorable, while the V-shaped or a very flat arch and vault are least favorable. The soft tissues are in the best condition when the mucous membrane is evenly underlaid with a moderate amount of sub-mucous tissue, and unfavorable just in the ratio to the tenseness of the mucous tissue, or the excessive amount of the sub-mucous material. The oral secretions should be normal and moderate in amount, but when they are excessive and too viscid or ropy in consistency, they interfere with perfect adhesion. In some cases the muscular

attachments may extend much farther upon the alveolar process than normal and thus interfere with the stability of the denture. In all cases it is necessary to so shape the periphery of the plate that there will be no undue pressure upon the muscles, otherwise the denture will be unstable.

Adhesion by contact is best secured by *uniform pressure* and *absolute contact*. When the conditions are most favorable, it is possible for an upper denture to be so firmly retained that it can be removed only with great effort. These extreme cases are quite rare, but nearly all upper and a few lower ones can by proper manipulation be made so secure that the patient readily acquires the ability to use the appliance. Uniform pressure is obtained



by properly taking the impression, making additions to the cast and in rare cases, carving the cast. Some operators carve the impression, but the writer considers it is better practice to confine all modifications to the cast. If there is excessive soft tissue over the vault where the periphery of the base plate will rest, it should be compressed while taking the impression, also the soft gum portion should be forced by the impression into a position in which it will do the least harm. (See taking impressions in September, 1904, number of this journal.) The portion of the cast representing the flabby gum may be reduced by judicious scraping; often with much benefit. A good rule is never to make any additions to the alveolar process except when there is localized hypertrophy of the hard tissue. No matter how hard the alveolar ridge may be, if it is uniform, it cannot be improved. In no case

should an addition be made to a normal portion of the alveolar ridge for the purpose of increasing the pressure upon the soft tissue; it will only tend to cause instability. These statements are especially applicable to upper dentures. There are lower cases in which there is a thin sharp ridge covered with tense tissue which must be relieved so that the pressure of mastication will not fall heaviest upon the knife-like edge of process. In upper dentures if there is less pressure upon any portion of the maxillary surface than another, it should be upon the high portion of the vault. There is nothing better than S. S. W. No. 60 tin-foil (which is four and one-half thousands of an inch thick)



for additions to the cast. The foil may be added to the cast in one, two or three layers by attaching each layer with sandarac varnish. The varnish for this purpose should contain as much again gum as that used for a separating fluid.

The raphe formed by the union of the upper maxillary marks a location upon which pressure must be relieved. (Figs. 1a-b, 2a-b, 3a-b.) There are few cases where there is so much soft tissue at this location, that no relief is desirable. (Fig. 6b.) The extent of relief over the raphe varies much in the various cases. In some cases it is necessary to extend the relief to the center of the alveolar ridge, (Figs. 1a, 3a) and it may be necessary to extend the relief through the distal edge of the base plate. (Fig. 2b.) Usually it is only necessary to relieve the highest portion of the vault without interfering with the distal edge of the plate or extending upon the alveolar ridge.

Figs. 1a-b, 2a-b, 3a-b, 4a-b, 5a and 6a exhibit various forms of the area to be relieved. The interrupted lines in Figs. 2a, 2b and 3a indicate the first layer of No. 60 foil and the solid lines, the second.

Fig. 1b represents an extensive case of hypertrophied raphe. In these extreme cases it is better to cut out the vault portion of the plate and depend upon clasps to hold the denture where there are teeth remaining to which clasps may be attached.

Fig. 4a-b represents circumscribed hypertrophied portions of the alveolar process and requires relief by one and possibly two layers of No. 60 foil.

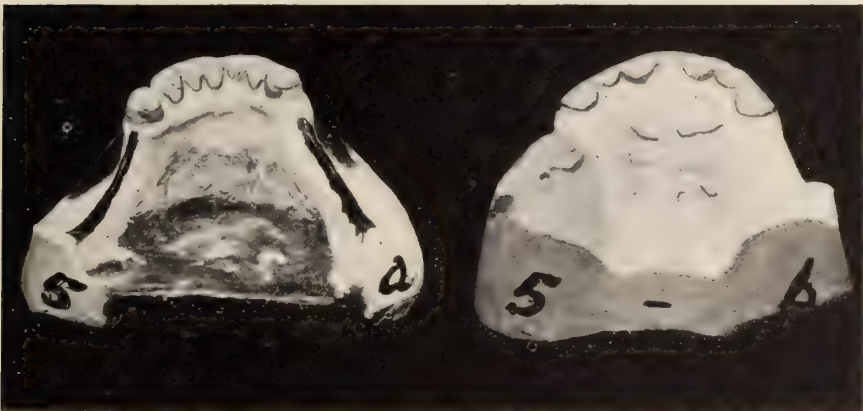


Fig. 5a illustrates a sharp alveolar ridge which has been relieved with a layer of wax preparatory to molding in sand.

Fig. 5b shows prominent rugae, which will require no attention for a plastic base, but would need relief for a swaged plate. In forming a metal base plate, all prominent portions are more compressed than the less exposed ones, and therefore must be anticipated in preparing the model for the die.

Continuous gum dentures were constructed upon casts represented by Figs. 6a-b. The high portion of the vault of 6a was relieved with a thin layer of wax, while 6b was carved so that the distal edge of the plate from heel to heel would slightly imbed itself into the soft tissue. As the anterior portion of the gum in illustration 6b was flabby, was used in taking the impression to force this portion of the gum forward and upward; then the

cast of this portion of gum was slightly reduced by scraping the upper surface.

By these means practically uniform pressure is obtained; then by the aid of the slight film of the oral fluids which is necessarily between the plate and mucous tissue, we have absolute contact; hence adhesion by contact.

Should there be heavier pressure upon the vault portion than upon the alveolar ridge, the unrelieved portion of the vault will become a fulcrum, and when the jaws are closed upon a morsel of food at one side of the mouth, a lever is formed which will dis-



lodge the denture; thus it logically follows that uniform pressure, or at least, perfect adaptation to the alveolar process is absolutely necessary.

Having a perfect setting base plate and the teeth arranged in keeping with the laws of leverage, the prosthetist has done his duty so far as the security of the denture is concerned.

THE PRINCIPLE AND CARE OF EDGES.

BY DR. B. BANNISTER, KALAMAZOO, MICHIGAN.

The beginner in learning to hone, should realize, first, the principle of the edge; of acute and obtuse angles and their practical application.

All bi-beveled instruments, as hatchet excavators, an edge is a wedge and should be formed to a point; looking at an edge laterally from its working direction, it is a line, the finer the line, the keener the edge.

Single beveled instruments, as chisels, an edge is a wedge in part, and a surface. The surface of the blades of chisels, hoes, and flat drills should be parallel, the bevel forming the edge is then easily produced. With hatchet excavators, the blade is of wedge form from the shank to the bevel forming the edge. The surfaces of the blade should be flat and equidistant, measured on any line laterally through the blade, to insure perfect bevels to form the edge.

Any fullness or ovoid form on the surfaces of the blades of chisels, hoes, hatchets or flat drills will be manifest on the bevel forming the edge.

The thinner part of the blade is liable to be ground in advance of the thicker part, and skill in honing will not produce a good edge on imperfect surfaces.

The obtuseness or acuteness of the bevel forming the edge is many times a personal choice. Some preferring acute, others obtuse, angles for the same work.

There can be but one angle best for any special work; the harder or more dense the substance to be cut the more obtuse the bevel forming the edge should be; the softer the substance the more acute the bevel should be formed.

A razor would prove impractical for chipping cast-iron; a cold-chisel a poor edge to shave with. The density of the substance to be operated on being considered; the most practical bevel for the edge will be found between these extremes. Well-formed edges often prove inoperative from position of patient, or from form of instrument to apply the edge to the surface at the proper angle.

The forearm of the operator, if held as near the body as permissible, to insure ease and precision in the work, the patient's head placed in position as to height and inclination, the density of the tissue noted, the instrument carried to the surface to be operated upon, when the best angle of the bevel will be instantly recognized. Applying the edge to hard tissue is upon the same principle as in the carpenter's plane. If the plane-iron is placed too far through the body of the plane, poor execution results; the least angle of the plane-iron's edge produces the longest shaving.

Instruments of the best manufacture in quality, form, finish, and temper, if not in order, have only their commercial value in the junk pile. The practical worth is in the edge. The edge being governed by the bevel. The bevel by the form of the shank, and surface of blade.

The engine is often responsible for dull edges. To realize when it is more practical to use hand-instruments in preference to the engine, or the reverse, is often the condition our edges are in. A dull bur is a nuisance; a dull cutting edge, is several. The worthless bur will be used, to burn and burnish, in place of hand-instruments, which may be kept in order with little attention from the hone. Ability is never acquired in any mechanical direction by "go-as-you-please" methods. Preparation, a knowledge of mechanical principles, their application, with concentration of mind and effort in perfecting every little detail is essential to success.

Observation will convince us that preparation, care and convenience is oftener at fault than want of ability to properly care for our edges. Dull edges increase our labor and by a tendency to a lack of thoroughness lessens the standard of our work. The dentist whose time is fully occupied is liable to be neglectful. Take the time, and have more leisure. The secret of speed without haste in cavity formation is in always having sharp burs, and good edges. To those of leisure who cannot and will not keep their instruments in order, it may be a source of gratification to be kept busy with dull edges.

RELIEF FROM PAIN IN ORTHODONTIA.

BY C. A. HAWLEY, D. D. S., COLUMBUS, OHIO.

When it was suggested that I apply the keynote of this meeting, the relief of pain, to that branch of our work known as orthodontia, the first thought that impressed me was that it would be my duty to practice painless methods upon the society itself by making my production very short. So, instead of following the history of the progress of orthodontia down from the middle ages to the present time, as otherwise I probably would have done, I will confine myself to the statement and discussion of a few important principles.

The relief of pain in orthodontia must be approached from a somewhat different standpoint from the relief of pain in other work in dentistry in that methods of manipulation, based upon correct principles must, for the most part, take the place of anæsthetics and obtundents, not overlooking the fact that care and delicacy of touch is essential in both, and in every department of surgical work. And while I have very little to bring to your attention that is new or individual to myself, yet to my mind the prevention of pain in orthodontia is so important and far-reaching in its influence, that I shall venture to present this paper in emphasis and restatement of some principles and facts already known.



Fig. I.

The work of the orthodontist should precede in the main the work of the dentist in preserving the teeth from caries and be finished when the dentition is complete. The reason this has not been done in the past is the painful character of the operation and the great endurance necessary on the part of the patient to undergo it, as is evidenced by the advice of the older writers, to wait until all teeth are erupted and the patient has reached the age of twelve to eighteen years, an age where pain could more easily be endured. As we crowd this period of treatment back to the time starting with the eruption of the first permanent molars, we gain immeasurably in the ease of movement, the stability of retention and the improved function of the lips and nasal passages, etc.

The importance of this work scarcely needs emphasis, but we note that most of the natural dentures that we see preserved into

the period of old age are those in which the occlusion and contact of the approximal surfaces are good. Could the teeth of every child be so treated that upon the completion of the second dentition, they would form a normal arch, with perfect occlusion and approximal contact, the chances for the preservation of the denture through life would be greatly increased, besides having the inestimable value of their complete use in mastication. The use in mastication in the first, highest and most important function of the teeth and to attain it in the greatest degree the teeth must be in normal occlusion with the arch of normal width and length.

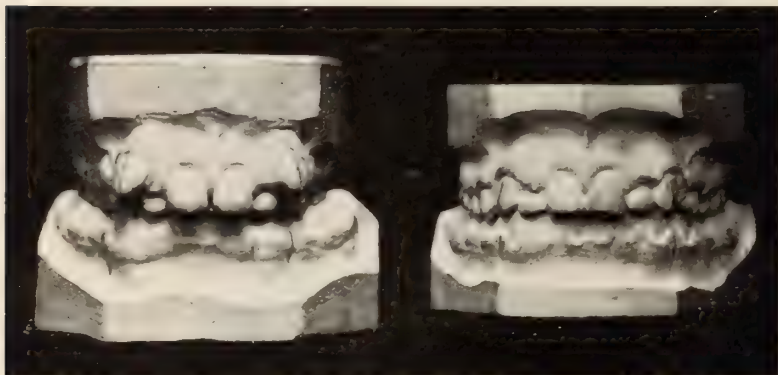


Fig II.

The restoration of the normal arch is also of great value in restoring the form and function of the nasal passages. A large number of the cases of malocclusion are accompanied or preceded by some obstruction and narrowing of the air passages. The full benefit of the treatment of this condition cannot be gained unless supplemented by that of the orthodontist.

It must also be remembered that in mouths where the teeth are in perfect occlusion there is much less liability to disease of the periodontal membranes and the soft tissues surrounding, and for this reason the restoration of the proper contact and full interproximal space has become one of the requirements of every good operation where these surfaces are involved.

There is one consideration of value, which involves the highest art in orthodontia and is most powerful in its appeal to patients, the restoration and preservation of the perfect form and

beauty of the features. While there are few cases in which if the teeth are placed in perfect occlusion the face will fail to assume its harmonious proportion and express the traits of character the brain possesses, yet there are many instances, where to great extent the moulding of the features is in the hands of the orthodontist. There are certain formations of the mouth and chin that are popularly supposed to indicate weak traits of char-



Fig. III.

acter and those formations are certainly, in many cases, caused by malocclusion of the teeth. What could be more unfortunate than for a child devoid of these traits to be obliged to carry the signs of them through life and be constantly misjudged.

While many of the baneful effects of malocclusion have been recognized for years and the hope of successful results has encouraged the ablest men to persist in their treatment through

many discouragements and failures, yet in the last decade great progress has been made in this branch, and orthodontia has reached the stage of accurate and successful practice. Among the many achievements of the period, there have been none more important than a clear comprehension of the cause of pain in these operations and the perfection of means to prevent it.

It was an early observation that upon application of sufficient force a tooth would move through the alveolar process by the evident absorption of the tissues on one side and their repair on the other, but this movement was invariably accompanied with great soreness and pain. Farrar entered into long investigation of the cause of the suffering and finally laid down the proposition that the movement of a tooth is a physiological process, must be accompanied by periods of activity and rest, and must be under perfect control; also, that there is a certain amount of work that the absorption cells can do in a physiological way and when pressed beyond this point, soreness, inflammation and pain result. The instrument he found most suitable for this movement was the screw being under complete control. The attempt to incorporate this instrument into every appliance led to his system, the most complicated known. Its operation was successful and tooth movement was accomplished without pain, but the adaptation of such complicated apparatus to the majority of cases is impractical. It has been found equally true, however, that teeth can be moved without inflammation or pain by other force than by screw, or intermittent force, provided that it is under such control that its power does not exceed that which is necessary to excite and continue the process of absorption.

Another important principle in the painless movement of teeth is that involved in the Magill or plain band. It renders the attachment of the force accurate and exact and prevents any impinging of the appliances on the soft tissues. The application of this band marks an epoch in orthodontia.

There are two processes by which teeth are moved, absorption and deposition, as in the movement of a single tooth and by the bending of the whole process *en masse*. The latter generally occurs when the arches are spread and a number of teeth are moved together at one time. This bending of the whole process may be done painlessly provided the force is not too great and is properly applied. In the movement of a single tooth the appli-

cation of force pushes the tooth against the walls of the socket and bends it outward. The pressure starts the action of the absorption cells and probably anesthetizes somewhat the nerves in that region. When once started it should never be relinquished, that is, there should be no springing back and forth of the apparatus, allowing the tooth to assume for the time a backward position. This springing back and forth in readjustments was a common fault of old appliances and is a sure cause of inflammation and pain. The movement of a tooth should be carefully and accurately planned and when once started should not be relinquished except for rest until the tooth is in the required position. It may be allowed to rest at a given point for a time and subsequently its movements resumed but should never be permitted to recede. The backslider in orthodontia, as in religion, is a constant source of humiliation and disgrace.

The teeth in both arches should be kept in as good occlusion as possible and if movement is necessary in both, they should move together. The use of the teeth will thus be maintained and the patient better nourished. Also, the influence of the occlusal planes assist the movement and elevation of the teeth in their sockets is better controlled.

As an example of an appliance embodying the best principles in orthodontia, I would present the expansion arch (Fig. 1) as developed and improved by Dr. Angle.

First, I would call attention to the firm and solid attachment to the teeth by means of the clamp bands on the molars, and next to the excellent control over each tooth in the mouth. If the vault is high and the case of such nature as to admit, the arch may be widened by ligating the bicuspid on both sides at once and so adjusting the amount of spring as to carry the whole process out by bending. The amount of spring necessary must be determined by experience. At the same time any tooth that is out of position may be brought in by tightening the ligatures and moving that tooth individually. When the teeth are to a position, where each touches the arch the expansion can be still carried on. At the same time this is going on, the front teeth can be moved to place, the tension of the expansion arch being controlled somewhat by the force exerted in ligating them.

The value of this appliance is much enhanced by the use of the wire ligature, for which also we are indebted to Dr.

Angle. Indeed the wire ligature is almost as great a triumph as the expansion arch. They are cleanly and small and can be easily threaded between the teeth. They can be tightened by twisting without renewal or relinquishing the force. The tooth is drawn tightly towards the arch, the wire twisted and the ends cut and turned under. In twenty-four to forty-eight hours the absorption process has carried the tooth along until the wire is loosened slightly. It can be left in this condition for several days or a week if necessary when, to continue the movement, the ends of the wire are turned back, grasped with a pair of pliers and the tooth drawn towards the arch and the wire again twisted and turned out of the way of the cheeks or lips. Their action and control thus resembles closely the screw mechanism and we



Fig. IV.

have in this appliance very nearly Farrar's ideal yet light, cleanly and very little in the way of the tongue or lips. It interferes little with speech or mastication. It should be adjusted with great care so that the ligatures will not draw too far under the gums nor slip over the teeth. If the teeth need rotating, plain bands may be fitted with a spur attached. Time and consideration for your patience forbids even mention of many combinations and uses of this arch and I must content myself with pointing out only its main features as concerned with the painless moving of teeth. Its management will repay the greatest study and application of skill and the profession is under lasting

obligation to the master mind that brought it to its present state of perfection.

The use of any appliance must be accompanied by a correct diagnosis and a clear and definite knowledge of the movement required. This involves a knowledge of the correct occlusion of the teeth and the normal form of the arch. Then with the proper management of the apparatus, teeth can be moved great distances without inflammation or pain and only a temporary soreness at starting.

While I am aware that this paper could be properly illustrated only with cases in progress which it is impractical for me to present at this meeting yet I will show you two completed cases, one of which involved extensive movement. In Case I the

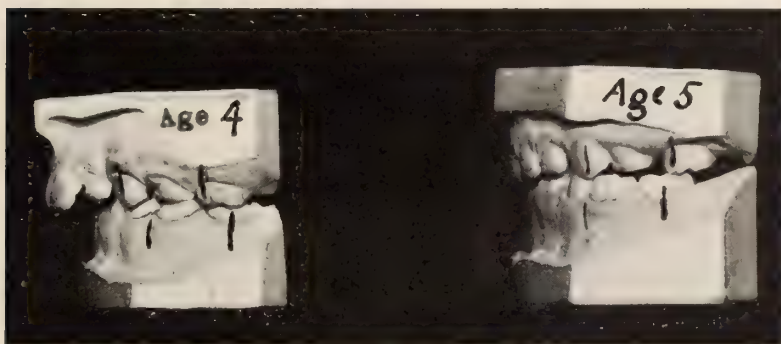


Fig. V.

patient was a girl of twelve, delicately organized physically, Figs. II and III show the front and side views of case before and after treatment, Fig. IV the occlusal views. An expansion arch was first applied to the upper teeth, passing it under the points of the cuspids, close to the central incisors so as not to interfere with the lips. The molars and bicuspid were moved from lingual to normal occlusion bucco-lingually in about six weeks. After resting a short time in this position a new arch with Baker anchorage hooks attached was adjusted passing over the cuspids. An arch was also adjusted to the lower teeth at this time. While the individual teeth were now being moved into position the Baker anchorage shifted the mesio-distal relations from distal to normal. The whole time of treatment was about six months. The movement was accomplished with practically no pain or suffer-

ing and no necessary interference with school work or other duties. Her physical condition at the end was as good or better than at the beginning.

Case II is that of a boy five years old at the time of treatment. The distal position of the lower teeth was noticed at the age of three and the impressions taken and models made one year later. The object of the treatment at this age was to so correct the position of the temporary molars that the first permanent molars would erupt and lock in the normal relation which would be impossible in their present condition.

Side views of the teeth showing their mesio-disto relation before and after treatment is shown in Fig. V and the occlusal views in Fig. IV. The dotted lines show the lines of occlusion

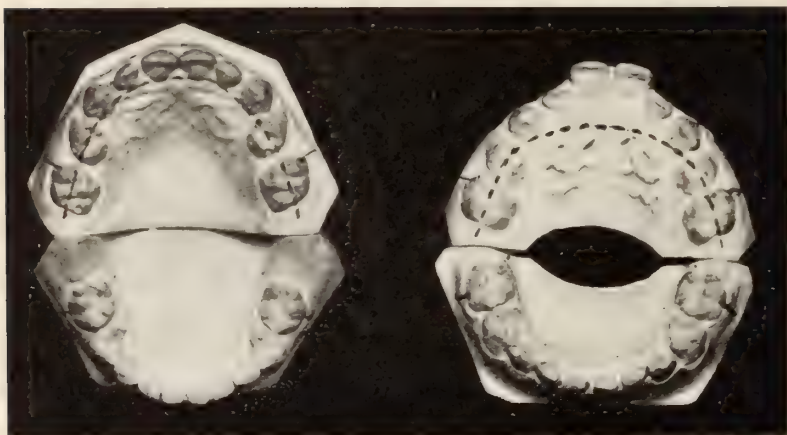


Fig. VI.

before and after treatment. In order to shift the occlusion it was necessary to move the lateral incisors and cuspids outward to the normal line of occlusion. The second molars are shown in the cut moved backwards somewhat farther than normal to ensure their settling into correct relation. The ordinary expansion arch, clamp bands, wire ligatures and Baker anchorage bands were used. No arch was adjusted to the lower jaw, the Baker anchorage rubbers being slipped over the tubes on the clamp bands adjusted to the lower second molars.

The amount of pain that a child of five will endure is very slight but by a nice adjustment of the apparatus this was kept easily within the limit.

Cases and conditions may arise where considerable pain will be unavoidable yet on the whole, modern orthodontia is not behind other branches of dentistry in attainment of results along the line of relief from pain in these operations. But the appliance must be modern and must be adjusted and managed upon correct principles. There must be an accurate and correct conception of where the movement begins and where it must end and a clear knowledge of the abnormal and normal relations of the teeth themselves.

PRACTICAL HINTS.

BY L. W. JORDAN, D. D. S., BINGHAM, MAINE.

To Make an Under Plate for Old People when the Ridge is Almost Gone.—Be sure and make the plate where it sets on the gum and tissues as wide as possible and at the back part scoop out the rubber of the buccal side all you possibly can from the necks of teeth to the rim, so the cheeks will fall into the concavity and help hold the plate down. The plate will look wide, but your patient will be pleased after wearing it.

To Close Flask.—In closing flask, close front first to push rubber back. If you close the heel first you are liable to push the rubber used as a base forward and force out your pink rubber.

A Good Cement Slab is a piece of white tiling three inches square, bought of the plumbers.

Pumice Holders.—There is nothing better to hold pumice and peroxide of hydrogen, mixed to clean teeth with, than a round watch glass with thick sides at right angles to the bottom and about $2\frac{1}{2}$ inches in diameter.

To Bleach Pink Rubber.—Put plate in clear water in a clear glass tumbler so the direct rays of the sun will strike or fall upon the pink rubber gum.

To Relieve Headache.—Eat a few grains of chlorotone.

To Make Liquid Silix.—Buy at the druggist some liquid glass, turn a few drops of it in a dish or paper, mix with a few drops of hot water and it is ready for use. It should be mixed fresh each time. The liquid glass should be kept in a dark place. The whole bottle will be ruined if the brush that is used

on plaster is put into it, as it forms a new compound when it comes in contact with plaster.

To Make a Nice Pink Gum.—If you want the pink gum to be an equal distance from the necks of teeth so as to show a well-defined line instead of an irregular or hit or miss line between the pink rubber gum and rubber above it that is used in the plate, invest the waxed-up model, in part of flask that hold model, only as high as you wish the pink gum wide. Pack pink rubber after separating as high as your investment in front. If you have invested so as to get a well-defined line, your pink gum will show a defined line also.

To Make a Good Cotton Holder for a Few Cents.—Get a common vaseline jar with a wide mouth and metal screw cover. Make a round hole in the middle of cover about $\frac{3}{4}$ -inch in diameter with a pointed flat file. Make a spiral spring out of piano-wire, place a piece of round cardboard on top of it, place in jar, screw on crown, and put in cotton.

CROWNS.*

BY DR. J. T. NEWTON, CLEVELAND, OHIO.

I do not put myself up as a “crack” crown and bridge man, but I do hope to point out a few of the weak points in the making of a crown

It seems to me that there are too many easy crowns put on. I mean by this, the crowns look well, are easily put on, the patient is pleased with the looks, and forgetful for the time being about durability, and the “easy” crowns are the result.

In trying to pick out the good and bad points in the many crowns, I find they all have a place more or less prominent.

The Logan crown is one that I seldom use, and is, perhaps, the least useful to me.

The Davis crown is a great improvement over the Logan, and can be used with much better results.

At first I found a few drawbacks to the Davis crown. It would sometimes come off, but for a long time past I have

*Read before the Cleveland City Dental Society.

used hydrofluoric acid to insure the thorough cementing of the post to the crown, and since then have had no trouble.

By setting the post in cement, and packing alloy around post as described by Doctor Owen, is a sure way of making a strong tooth. I am afraid, however, that should there be any absorption the alloy would show enough to give the root a disagreeable color. In fact, I have seen several, and presume I shall see a great many more.

The ideal crown in my mind is the Knapp crown, with a few modifications.

I make the band for the root, and before soldering up to band I grind down the bucco-occluding surface so that the top in soldering will not unite with the band at that point; then, after soldering the post or posts into position, I cut away a portion of the band and place into position on the root, and thoroughly burnish the labial occluding surface to the root. I have made it a practice for several years to have the patient in the chair long enough to have tooth placed in position in wax before the final soldering, because you can never tell how the color will match the adjoining teeth, and perhaps the slant should be changed just a little.

In backing up the facing I use soft foil and find with care it is the easiest and most accurate to adjust to the facing.

When the crown is finished I have no gold on tips of tooth, and no gold showing at the gingival margin. I am not afraid the facing will be broken; should it be you can repair it by using your furnace and baking another. Neither am I afraid the root will split. You all know it is about a hopeless case when that happens.

I have a crown which I will pass around, that was useful for about ten years, when the root split. The doctor reset the crown. The patient retained the tooth for ten years after, but it was a source of great annoyance to him all that time. When I removed it, it was about the vilest thing I ever saw. Its retention had been the adjoining teeth, and was and had been an entirely foreign substance for years. The man was able to pay for a band crown in the first place, and had it been put on he would have been having the use of the tooth today.

There are some who will say the bands are a source of irritation, and that they are not cleanly. This I will grant if they are not properly made.

It is not necessary to put the band above the gum margin on the lingual side, and on the mesial and distal sides the band is replacing lost enamel, while on the buccal side there is none. I claim for this crown that it is the best crown made today, and can easily be made in from two to three hours.

On the other hand, if you make the band as wide as the facing, and too large for the tooth, with not proper care of the root, you had better put on the easy crown.

I use very little platinum or platino iridium in my work on account of its bluish appearance.

The shell crowns, as a rule, are made of too light material, and with not enough contour. There are a great many more of them made than there should be. However, where it is necessary to crown a molar, the shell crown, in most cases, is the thing. Where the walls of the tooth are so broken down that the retention of the filling is impossible, the shell crown should be used. The lost walls of the tooth should first be replaced with alloy, and as little cement used as possible to retain the crown. In many cases a post or two are necessary. Then make the band to go just to the gum line, finishing the crown with solid top. For this purpose scrap gold can be used by melting up to the size desired, and swaging the gold into a Mitchell die-plate, using a heavy hammer, say four pounds. Then contour to the necessary amount, by flowing solder on where it is needed.

A crown of this kind can be ground down, if necessary, to make the occlusion perfect. As you all know the usual method of taking impressions to get the bite for occlusion, it will not be necessary to describe it.

This same crown, where fastened to in bridge-work, will do the work for years, whereas a light crown would only be a temporary piece of work.

I believe in the majority of cases patients would prefer the best crown, regardless of price, did they but know the merits of the different crowns. There is no doubt in my mind but time has a great deal to with it, and if the doctors had less to do, some of them, and received more for their work, they would become artists in the profession, and live longer.

Would that we, as a society, could do better work and put on more *good* crowns, giving our patients the best, and in return getting more for our services. Seemingly, there has been a standard price established for crown and bridge-work,

which is too little for the services rendered in this kind of work, and the standard price should be raised.

The man who makes the beautiful crowns and puts on a few frills in his bridge-work, making same substantial, is going to get to the front, but you may depend upon it, it will not be with the "easy" crowns.

A CASE IN PRACTICE.

BY O. B. KNEISLY, DAYTON, OHIO.

It is with great interest I read of the various strange cases in practice presented in THE SUMMARY by members of the profession, and the similarity to cases in my own practice is sometimes very striking.

I want to present a case that I recently dismissed, which will serve to demonstrate the dangers that arise from the physician tampering with cases that do not properly come within the boundaries of his calling.

Miss J—, age 15, weight 95, picture of health, sickness almost unknown, was presented to me with an abscess of inferior left six-year molar, which through the use of mustard plasters and applications of aconite and iodine, advised by a physician some six weeks previous, had formed a fistula on the side of the face somewhat back of the junction of the body and ramus of the jaw.

The physician had, in the six weeks, done nothing except to apply medicinal substances on a probe wrapped with cotton, and anoint the region of the fistula with carbolated vaseline.

At the end of the sixth week he decided to operate for necrosis, and ordered her taken to the hospital at once; the parents refused, and upon recommendation of their druggist brought the patient to me.

I immediately extracted the six-year molar, and inserting abscess needle in the fistula, proceeded to wash out the sinus with a fifty per cent. solution of glyco-thymoline. Removed the diseased tissue back to the twelve-year molar, but found that it was as badly affected as the one already extracted, and after examining thoroughly and seeing no possible chance of saving it, extract-

ed it and removed all the diseased tissue surrounding it, applied pyrozone full strength followed by glyco-thymoline; prescribed dioxygen as a mouth-wash and dismissed for the day.

For two weeks following I treated the patient every day, keeping the sinus open with cotton ropes saturated with Price's glycerine. At the end of this time the wounds from the removal of the teeth and necrosed tissue were healing nicely, and all soreness had subsided, and the patient perfectly at ease.

I then confined my work to the sinus and fistula, using dioxygen and glyco-thymoline as a daily dressing and shortening the cotton rope.

When the sinus had closed about half way, I inserted a small sharp excavator and severed the tract all around and massaged the parts thoroughly; again I repeated this method when the wound had healed as far as the fistula lips; taking a lance, sharpened to a razor's keenness, I shaved off the membrane which lined the lips, and after washing thoroughly with dioxygen, drew them together with adhesive plaster, which I increased to several thicknesses and dismissed the patient for a week.

Five weeks ago the patient came back and I removed the plasters from the wound and found it was healing without farther trouble; she has called twice since and the only mark to be seen is a thin white line about a quarter of an inch long, somewhat inflamed yet, but which I feel will soon disappear.

The patient's mother told me, when she called to settle for my services, that the physician had sent them a bill for \$20.00—certainly a "beautiful" fee for such a "beautiful" piece of work.

Such is the result of the physician's attempting or actually intruding upon the field of the dentist, and passing beyond the boundaries of his own profession.

I know that many similar cases can be cited in the practices of my brother practitioners, and only speak of this case with the hope that some of our physicians who may read these lines may learn where to draw the line between the fields of the M. D. and the D. D. S.



FOUR BARRIERS TO GOOD TEETH.*

BY L. L. ZARBAUGH, TOLEDO, OHIO.

In the preparation of this paper it has not been my purpose to advance a new theory or method, but rather to bring to your notice four causes that are responsible for the nerve-racking and provoking cases in dental practice that present themselves to us almost daily, and which, if the right course is pursued, can almost, if not wholly, be eliminated, especially so in cities and intelligent communities.

The four causes to my mind are: Lack of funds, fear, ignorance, and indifference.

The lack of funds I will touch but lightly. Important and indispensable as it is in having the teeth cared for, yet it is the least of the causes in keeping people away from the dentist. Ignorance, fear and indifference all come before it.

Fear, that indescribable something, which, when it fastens itself upon its victims, causes them, as it were, to cast reason, judgment and even knowledge aside, while they will live on from day to day enduring pain, disadvantages and disfigurements with the fortitude of a martyr. Why will people allow themselves to suffer thus with their teeth? They have the funds, they are not indifferent; they want their work done; they know it ought to be done. Fear keeps them away. Finally when they are driven to us we see in many cases hopeless ruin, and the forceps are the only remedy. While in others only at great expense and the highest attainment of skill are the teeth rendered serviceable.

Ignorance, I believe, is responsible in no small way for the fear people have of dental operations. "Where ignorance is bliss 'tis folly to be wise," is an old saying that does not hold good in connection with the teeth. We never find bliss depicted upon the countenance of a person with a howling toothache, however ignorant that person is of the presence of decay or the pressing need of the dentist. That ignorance is the cause of much distress and neglect of the teeth, no one can deny, and unfortunately it falls to the lot of children to carry the burden and suffer the consequences brought on through the ignorance of the parents. We have all heard the same excuse, "I thought that was a baby

*Read before the Toledo Dental Society.

tooth," which is invariably given when we tell the parent that the tooth in question is a first molar, a permanent tooth and that by all means it should be retained. That upon it, with the other first molars, falls an important function, that of preserving the articulation during the shedding of the deciduous and the eruption of the permanent teeth. If we would perform our whole duty in cases like the above, we must of a necessity consume valuable time, expend nerve force and energy and work under great disadvantages, for all of which we are rarely, if ever, fully compensated.

Indifference is usually the result of fear and ignorance. Through the workings of these two agents, the teeth get in such a deplorable condition that the person loses all interest in them, and wishes himself well rid of them, and only after the anterior teeth become affected do they present themselves to us, whereupon we are forced to listen to the same old story, "Didn't know they were so bad. They just seem to have gone all at once," or, "I was afraid it would hurt," etc. The remedy for fear, indifference and ignorance can all be centered in one thing. If it did not cure, it would at least be an improvement upon the existing conditions. That remedy is the examination of school children's teeth between the ages of six to twelve, not for statistical purposes only but rather for the benefit of the coming generation. By this means we could at once eliminate the ignorance, reduce the indifference or neglect, and with less neglect there would be less fear.

For any good to result from a movement of this kind, it would be necessary to bring to the notice of the parents the needs of the children in this direction. Then, if they had the best interests of the child at heart, they would see that the attention was given the teeth that otherwise might go undone, through lack of knowledge. I believe that if this was universally adopted, that in a few years a person wearing an artificial denture would be a curiosity. With the people properly educated to the needs of their children's teeth, they would in most cases make provisions financially to have them properly treated.

As it is now, we are compelled to educate our patients in the operating-chair, consuming time that might otherwise be employed in the actual operation. When the children have been taught the importance of frequent visits to the dentist and the

relation of sound teeth to the general health, we will have fewer unwilling patients.

Coming to us, as they would, of their own free will, we would as a consequence be rid of the tedious and more difficult operations. Thereby rendering them more desirable to both patient and dentist.

DOCTOR JENKINS' PORCELAINS.*

BY DR. R. S. MILLER, PHILADELPHIA, PENNSYLVANIA.

The dental profession at large acknowledges that porcelain has come to stay and it is no longer a question if the practitioner wishes to take up porcelain work, but a question of which system he shall adopt. Porcelain workers are divided into two camps today, those who believe in low-fusing porcelain and those who believe in high-fusing porcelain.

It is generally conceded that any porcelain melting thoroughly below the melting point of gold is classed as low-fusing, while any porcelain melting above the melting point of gold, is classed as high-fusing.

Among the principal points of advantage claimed for Jenkins' low-fusing porcelain, not possessed by the higher-fusing materials, are the following: A gold matrix can be used instead of platinum. Gold is a far more ductile material, can be used in a considerable thinner sheet than platinum and enables the operator with ease, rapidity and accuracy, to obtain a matrix of even a difficult cavity, without a long process of burnishing, or without the necessity of trying the matrix into the mouth after the first or second fusing.

The low temperature at which Doctor Jenkins' porcelains melt, enables us to make use of a larger variety of metallic oxides for coloring our porcelain and gives to low-fusing porcelain a delicacy of shade impossible to secure in the same degree, with a higher-melting product.

In Doctor Jenkins' porcelain enamel we have been able to

*Report of clinic at The Ransom & Randolph Clinical Exhibit, December 12, 13, 14, 1904.

produce a material immensely dense and resembling tooth structure more closely in appearance than any other product.

QUESTION: Is a low-fusing porcelain as strong as a high-fusing porcelain?

ANSWER: This question has been discussed from both sides, and experiments made by a large number of investigators have led to diametrically opposite results, so that the adherents of both sides have data to bring up, to substantiate their claims. Suffice it to say that Doctor Jenkins' porcelains, when properly fused for the mouth, are considerably stronger than either an American or English artificial tooth and during the ten years in which these porcelains have been on the market, no complaint has come to us as to their lack of strength, of change of color, or of disintegration in the mouth.

The dentist of today, is seeking the easiest, shortest and most accurate method by which permanent porcelain restorations can be made. Because of the simplicity of our method and the practicability of it in the hands of the average operator and because we have a vastly superior material the interest in our product has grown enormously of late.

HIGH-PRESSURE DENTAL SYRINGE FOR OBTUNDING SENSITIVE DENTINE.*

BY A. A. WILCOX, D. D. S., CLEVELAND, OHIO.

After placing the patient in the chair, Doctor Wilcox said:

One of the most remarkable and valuable appliances for minimizing the pain incident to all operations on the teeth is the high-pressure dental-syringe. By its intelligent use at least ninety per cent of sensitive teeth coming under our care can be completely desensitized in from ten seconds to two minutes. In order to demonstrate to those present that pressure aesthesia really desensitizes a tooth, it is necessary for us to determine the degree of sensitiveness of the teeth to be operated on in this clinic. The first tooth upon which we will experiment is a superior right cuspid with a cervical cavity extending beneath the gum. The patient informs me that a gold filling has recently

*Report of clinic at The Ransom & Randolph Clinical Exhibit.

fallen out. I shall therefore expect to find extreme sensitiveness. I will ask some dentist present to drill a pit with this No. $\frac{1}{2}$ round bur for the reception of the needle point.

VOLUNTEER OPERATOR: Where shall I drill the pit and how deep?

DOCTOR WILCOX: I find I get better results if I cut the pit near the enamel to about the depth of the bur. I do this because near the enamel I find a border of dense and less sensitive dentine. (Operator begins cutting the pit and the patient manifests the usual symptoms of suffering.)

DOCTOR WILCOX: While it is much easier to get "contact" if a pit is made for the needle-point it is not necessary if the operator is skillful and uses a needle-point like this one. I will ask you to examine this point carefully. You will see that it is constructed with a circular knife-edge, which, by gentle pressure with a slightly rotary motion, cuts for itself a seat in the dentine. I will illustrate my meaning by placing it in contact with the dentine. You will observe that I am giving the lightest pressure possible. In this way I densensitize a very limited depth of dentine, constantly pressing a little harder both on the needle-point to prevent leakage, and on the pressure-wheel to force the solution deeper. You see at the end of two minutes I have a perfect non-leaking "contact." Now I will apply considerable pressure for ten seconds.

I will ask the gentleman who first attempted to excavate the cavity to ascertain if complete desensitization of the tooth has taken place.

VOLUNTEER OPERATOR, in concurrence with the patient: There is absolutely no pain as a result of removing all decay and preparing the cavity for filling.

(The tooth was filled temporarily with cement, and another tooth selected, this time an inferior first molar.)

DOCTOR WILCOX: In this tooth we have a distal cavity which is inaccessible for either the straight or curved needle. We will therefore drill a pit through the enamel on the buccal surface, near the gum, afterwards filling this little pit. In this case the "contact" is easily made and the tooth desensitized in two minutes.

QUESTION: Why did this case require a greater length of time than the first?

ANSWER: On account of the greater depth of dentine to be penetrated. Density of tooth structure is also a factor in determining the length of time required.

DOCTOR WILCOX: Our third and last experiment will be on a superior central incisor, having an approximal cavity so small that it is impossible to insert the needle, and to drill a pit for the purpose is objectionable. To obviate the necessity of doing this, I will first place a little cocaine solution on the gum. I wait a moment, and then gently force the needle under the gum at the neck of the tooth, insert the point in the cementum, make a firm contact and inject the root. Time required, thirty seconds. On examination it is found that the entire tooth is desensitized.

QUESTION: Is there not objection to this mode of procedure?

ANSWER: I do not think so. The sharp, circular knife-edge point has made a clean cut through the peridental membrane—a slight indentation in the cementum, and being covered with the gum will immediately fill with calcarious deposits, and, in my opinion no injury results.

QUESTION: Is there not danger of permanently injuring the pulp and thus causing its death?

DOCTOR WILCOX: Not unless the instrument is recklessly used. Of course it would be possible to saturate the pulp with cocaine with serious consequences; but there is no necessity for doing this more than in continuing to administer chloroform after profound anesthesia had taken place. If one-fiftieth of a drop reaches the pulp it is sufficient.

QUESTION: What advantage has the Wilcox-Jewett instrument for the purpose?

ANSWER: It has this advantage: It is operated with one hand, leaving the other free. Then, too, the pressure-wheel may be oscillated, or the fingers rested by being changed from one spoke to another. The pressure-wheel is extremely sensitive to the touch and after a little experience the operator can tell to a nicety the amount of pressure he is applying. In extremely sensitive teeth the pressure may be gradually increased and the patient feels no pain when the maximum of pressure is reached, whereas, if great pressure were immediately applied, unnecessary suffering would be inflicted.

QUESTION: When was this method of desensitizing pulp first used?

ANSWER: Dr. N. B. Acheson, formerly of Youngstown, Ohio, now of San Diego, California, is supposed to be the originator of pressure anesthesia. For this discovery the dental world owes him a debt of gratitude. Thirteen years ago he constructed a syringe for the purpose, with a tapered needle made to fit a tapered pit drilled in the enamel or dentine. He never attempted to put his invention on the market but most generously gave his idea to the dental profession. Two years ago he showed it in a clinic at the Northern Ohio Dental Association.

THE PRICE PYROMETER FURNACE.*

BY F. L. CHRITMAN, PITTSBURG, PENNSYLVANIA.

The Price Pyrometer Furnace which I have here is an instrument especially designed for porcelain workers by Dr. W. A. Price of Cleveland, Ohio, and as you see, aside from the furnace itself, we have here a meter which tells us the temperature in our muffle so that, knowing the fusing point of any porcelain on the market, the operator is enabled to subject his inlay or crown or bridge to exactly the right temperature that will fuse it without over or underbaking the same, thereby assuring him of perfect fusion, exactness in color, and the length of time to which he will subject it to this temperature will determine the degree of glaze, thus enabling him to produce any result he may wish.

QUESTION: How is it done?

ANSWER: By making use of a law in electro-physics, which law is that when the point of contact of two elements are heated a certain number of heat waves are transformed into electric waves, thereby generating what is known as the thermoelectric current. This current is in direct proportion to the temperature, consequently by measuring the milli-ampere of this current (which at 2500° F. is only about 1-50 of one volt) we

*Report of demonstration at The Ransom & Randolph Co.'s Clinical Exhibit, December 12, 13, 14, 1904.

are enabled to determine the degree of temperature with an accuracy far and away in advance of any other method so far discovered.

QUESTION: This is then a millammeter, is it not?

ANSWER: Yes, but it differs from the millammeters inasmuch as the transposed scale gives us thermal units to work with in addition to millampere units.

QUESTION: How long will the Pyrometer last?

ANSWER: If properly taken care of according to directions sent out with the instrument, there is no reason why this instrument should not last a lifetime, because the bearings being sapphire on steel, a needle point will certainly not wear, and to prevent injury from shock, the lever is used to lock these bearings apart.

QUESTION: - Can the readings ever change?

ANSWER: Yes, they might change, and any time that the operator has reason to doubt his instrument, all he has to do is to take a pellet of gold, place it on a tray in center of muffle, bring his temperature up gradually, watching the gold, and immediately on its fusing, read the temperature indicated by meter; should this vary from temperature given in our charts, all he will have to do will be to correct the readings with this lever thereby assuring him perpetual accuracy.

QUESTION: What is that for? (pointing to the level.)

ANSWER: That is a spirit-level, and with these four thumb-screws at the corners of the marble base you can level the instrument on an uneven surface. This is necessary, because the long needle or pointer has a short counterpoise at the other end of the bearings, and without this device the needle might drag on the scale plate.

We also furnish with the instrument these testing wires and by inserting them into these two plugs, disconnecting the furnace by putting this switch on blind stop, and then touching these aluminum and copper plates to the tongue thereby producing a minute galvanic current, you are able to tell whether the needle swings freely or not.

QUESTION: How does this instrument differ from the others shown so far?

ANSWER: It differs from all others inasmuch as we measure the actual temperature existing in the furnace instead of

trying to measure the ohmage of the current which is heating your furnace. This current is variable, often ranging from 90 to 120 volts so that the ohmmeter can give you no correct idea of the temperature at all, and as temperature is the factor in the baking of porcelain these other methods appear very crude in comparison with this.

QUESTION: In what does your muffle differ from others?

ANSWER: The muffle differs from others inasmuch as the wire is wound all around the sides and back, thus insuring you heat from top, bottom sides and back. The door being closed (as you have no occasion whatever to look into the furnace), insures a more even distribution of heat than in any other furnace which must be opened so as to enable the operator to look into it. Then the wire with which this muffle is wound is waved 1-32 of an inch to the wave. This prevents breaking of wires under sudden expansion or contraction or should the clay break and attach itself to the wires it cannot tear them but will simply straighten out one of these curves.

QUESTION: You say you don't have to look into the furnace. How can you tell when the porcelain is fused?

ANSWER: By simply watching the needle and when it indicates the temperature at which your porcelain fuses, you can depend on it that that porcelain is fused. Therefore your eyesight need never suffer from looking into a white-hot furnace.

QUESTION: You state that you can reproduce the same color an indefinite number of times. Are you sure you can?

ANSWER: Positive. Because if you subject different batches of porcelain of the same manufacture out of the same bottle to the same conditions of time and temperature as you are enabled to do with the Pyrometer Furnace, you will always produce the same result, and to prove it to you, I will now let you make a bake at 2,080° of this sample of Brewster's enamel body—two samples of which I have on this card here, and you will find that the result will be exactly the same. Then I will have you subject another sample to a temperature of 2,200° F. just as I have done, and your result will be the same as this, the color will have been burned out and the porcelain have an excessive glaze besides about 50 per cent. of crushing strength will have been burned out.

QUESTION: Is this true of all porcelains?

ANSWER: Yes. No matter who makes them, all porcelains are alike in this respect, that when over-fused they become lighter in color and lose in crushing strength, and some become clear as glass and just as brittle.

With this instrument any one is enabled to do the baking of porcelain whether they have had experience or not. In thirty minutes an office-girl can be trained to do the work just as well as the best porcelain worker in the world, provided she can read temperatures

DEMONSTRATION OF PLATE SWAGER.*

BY DR. M. A. COYKENDALL, GRAND RAPIDS, MICHIGAN.

With the appliance which you see before you, I can swage a metal plate in thirty minutes and this time will include the taking of the impression. The time mentioned is so short that the patient need not leave the chair until the plate has been tried in the mouth.

I first take a plaster impression, the same as for a rubber plate, then place the impression while still in the impression-tray in the contrivance I have in my hand which I call a molding-box. The edges of the impression are then built up with moldine to a sufficient height to give the die the thickness of about one inch.

After melting a special low-fusing metal composed of ingredients and mixed in such a way as to produce best results, I make my die by pouring the metal directly into the impression. The molding-box you will see, prevents the escape of the metal by holding the moldine in place. It is, of course, best to get your die just as soon as possible after the impression has been taken.

SPECTATOR: Why do you emphasize the necessity of casting your die so quickly?

ANSWER: To avoid the expansion of the plaster impression. You know that plaster expands and if an impression is

*Report of demonstration at the The Ransom & Randolph Co.'s Clinical Exhibit, December 12, 13, 14, 1904.

left too long after being made, a plate made over the die from that impression will not fit the mouth accurately.

SPECTATOR: How do you avoid bubbles in the die?

ANSWER: By pouring the metal as cool as possible. I pour the metal just on the point of granulation. Even if you do have a bubble in your die, it always comes on the palatal surface of the die and the bubble can be filled with modeling compound. If however, you fear a bubble has been formed, heat the handle end of an old excavator and press it through the cool metal die to your impression. This will melt the metal and remove the bubble.

If you will coat the impression with Ivory Virtnus or liquid Silex and allow it to dry a few minutes before pouring the metal, the danger of bubbles will be reduced to a minimum, as the preparation fills the pores of the plaster and prevents the steam escaping.

SPECTATOR: Do you trim your die or impression?

ANSWER: Yes, I trim just the same as I would in making a rubber plate, only more, because the tissues will tolerate a closer fit with metal than with rubber.

After getting my die, one of the handy aluminum blanks of a size that will fit it approximately is selected and placed on the die. Then the two are wrapped with rubber dam to prevent the paraffin used in connection with the swaging outfit from getting under the plate. Then the die, blank, and dam are placed in the bottom part of the swager, the paraffin which you see in the upper part of the swager, is cut away enough to allow the upper and lower parts of the swager to come together, the upper part is then placed upon the lower as you see, the bolts are placed in position and the two parts locked together by them. Then a section of a paraffin candle is placed in the plunger hole the plunger is put in position and malleted. If the plunger strikes the shoulder I simply put in another section of candle. It is necessary to remove the partially swaged plate and anneal it before the plate can be completely swaged. In the case of very deep undercuts, it is necessary to anneal the plate twice or more.

The plate should be trimmed to exact dimensions and all attachments such as loops, stippling, or countersinks, made *before* the final swaging. We thus avoid all danger of distortion of the

plate, as by this method the plate can be swaged after the loops are on without spoiling the loops.

I now hand you the completely-swaged plate and if you have timed me, you will notice that I have not only swaged the plate but stopped to answer your questions in less than twenty-five minutes.

SPECTATOR: How do you tell when aluminum is heated sufficiently for annealing?

ANSWER: I hold it in the flame until a pine stick will make a mark when drawn across it.

SPECTATOR: How do you get your plate off of the die in case of heavy undercuts?

ANSWER: I drop die and all into boiling water and melt it out.


SPECTATOR: How do you get your plate out of the swager without springing?

ANSWER: I cast the flame of a blowpipe on it until the paraffin softens and it can then be lifted out without difficulty.

SPECTATOR: Does this method leave the plate thin in places?

ANSWER: No. Your plate comes out the same gauge it goes in, the pressure being evenly distributed is alike at all points.





CORRESPONDENCE

INTERCHANGE OF CERTIFICATES.

I have read the article "Interchange of State Certificates" in the October (1904) number of *THE DENTAL SUMMARY* by Dr. H. G. Patterson, of Idaho, also the article in reply by Dr. A. E. Weaver in March number, 1905. While there is much to feel proud of in securing a diploma from recognized schools of dentistry, and our love for our Alma Mater, what proof have we that in going before a board whose membership consists of non-graduates, who are in the office by some political wire-pulling (not for any recognized merit as dentists) that we will be treated fairly? Men who hold diplomas from well-recognized schools of dentistry who wish to change from one State to another should receive recognition from the Board into which State the applicant decides to enter. His qualifications and the right to own the diploma he presents should be looked into, and if found correct, should be given a certificate to practice. We all know that after years of close attention to mechanical and operative dentistry our retentive qualifications on anatomy, physiology and chemistry lose their grip because we naturally allow those things which we do not need in every day practice to slip from our memory, hence we are not able to stand the test of technical examinations the young graduates will find very easy. A circumstance not so old but can be remembered very vividly happened to the writer in going before a State Board in Idaho. I presented a diploma from the University of Pennsylvania, a letter of credit from my own State Board as to my character and qualifications, a record of twenty-five years' continuous practice in my native town and yet I suffered the humiliation of being decreed ineligible to practice in the State of Idaho, underwent arrest and asked to appear in court for trial. Feeling there was justice to be found in higher circles, I presented my case to the Governor. After that the

Board gave me my license. The original instigator of the suggestion to exchange certificates has never taken a full course in a dental school and would be glad to get out of the State if he knew his certificate would be recognized without examination. To such men I hold an examination should be given. There are other cases on record where State Boards have thrown good men because they were not wanted in the field of the non-graduate class, and I deem necessary steps should be taken to stop such proceedings. If privileged to cast my vote on Interchange of State Certificates my verdict would be *no* in the case of non-graduates.

Hoping this question will receive widespread interest in your Journal and the papers published I remain,

Yours very truly,

C. A. SOUTHWELL, D. D. S.,

Boise, Idaho.

INTERCHANGE OF STATE LICENSES.

Editor The Dental Summary:

In your March number "Correspondence," I note a letter from Albert E. Weaver, D. D. S., of Boise, Idaho, upon the subject of "Interchange of State Licenses." It is a peculiar feature that in the make-up of the human mind, there are some that even when given a plain statement, written in plain English, their eyes get "locoed" (as that is a western expression, Doctor Weaver will doubtless understand it), and they see "bugaboos" in their various phases. If the Editor will kindly allow one of the "agitators" of the matter under consideration to correct the "locoed" vision of the Doctor, as well as any others who may be suffering likewise, I will endeavor to get their "optics" relieved from its very apparent "stigmatism." Taking the plan of the "Asheville resolution" or "Stockton plan of interchange of license" first:

"Resolved, That an interchange of license to practice dentistry be and is hereby recommended to be granted by the various State Boards, on the following specific conditions:

"Any dentist, who has been in legal practice for five years or more, and is a reputable dentist of good moral character, and who is desirous of making a change of residence into another State,

may *apply* to the *Examining Board* of the State in which he resides, *for a new certificate*, which shall attest to his *moral character and professional attainments*, and said *certificate*, if granted, shall be deposited with the Examining Board in the State in which he proposes to reside, and the said Board, in exchange therefore, may grant him a license allowing him to practice dentistry."

In order to obtain this *new certificate*, the man must be *reputable, moral and competent*, as well as in active practice for five years preceding his application to his State Board for the interchange certificate.

Certainly *such a man* would not be dangerous to the public, whom the laws are made to protect, nor will he contaminate the members of the profession among whom it may be his fortune to compete with in his new home.

Such a man is not giving up his practice in a locality he has been identified with for five or more years except for the purpose of enlarging the field of his operation by going to a more densely populated district, or for personal reasons over which he has no control, such as ill health of either himself or some member of his family, etc.

Without the least doubt such a man could, by personal sacrifices of time and money, perfect himself to pass any of the State Boards' examinations, but is it *necessary for the public's protection?*

In some instances it might mean that a man's income from his professional work should cease for a period of from six months to a year, awaiting the meeting of the State Board to examine him. Are there many men in the profession who have perhaps held on at home through months of illness, hoping they may recover and continue to practice there, who could confront a further delay and expense of months more, sapping the last grain of their enfeebled strength in mental preparation for an examination, the scope of which is as various as are the State laws?

Is that hardship necessary? Who gains by it?

Now, Doctor Weaver and others are very much afraid that if this "interchange" becomes universal, it will turn loose upon the public and the dentists in practice, a horde of "nomads" who will be as "wandering Jews, homeless upon the face of the earth."

That is a simple impossibility, from the fact that *the new certificate* is deposited with the State Board from whom he is to ob-

tain his new *license to practice*; his certificate of interchange has passed out of his hands, and to obtain another he will have to remain in his new home for a period of five years or more before he can request a certificate of interchange from that State to another. It would be a very much less troublesome and costly an operation for a man to study up for six months, and *pass* any Board he desired, than go into a strange place and try to make a living for five years to enable him to obtain a certificate of interchange and again go through the process of building up a living practice in another new district. That any man would be fool enough to undertake such a method of getting into some particular locality under such conditions is too ridiculous on its face to receive attention from any but a "locoed" mind.

For argument, let us suppose a dentist should leave the District of Columbia with a certificate of interchange to Colorado, ill and broken in health. Say he goes to Colorado, practices for a few months and finds the climate does not agree with him and wishes to go to California, where it is more balmy. He has given up his "certificate of interchange to Colorado" to the Board of that State. His proper course would be to write to the State Board of his original State and inform them of the circumstances and request a new certificate. His old State Board would at once communicate with the Colorado Board to substantiate his statement for requesting a further change, and if the Colorado Board *then endorsed* his request, it could be granted by the Board of his original home, and in that manner, and in that way only, would he or any one else be able to move into more than one State from his original five years' residence by which he acquired the first interchange certificate.

If he had conducted himself and his practice in a proper manner while in Colorado, that Board would know the facts and so endorse them, and if he had not, the limit of his interchange would be reached.

If he was a man with unethical propensities in his original home State, he would never be able to obtain the first certificate of interchange, unless his State Board was composed of men without honor, and in that case, that State Board and the dentists in that State would find themselves cut off from interchange with any State in the Union on very short notice. The provisions of the "Stockton" or "Asheville resolution" are such as to give every State and the public, or dentists thereof, more protection than do

the present laws or the examinations, and give justice where justice is due, with harm to no interests whatsoever involved.

I would not ask for a better argument for the need of this scheme of interchange than that contained in the letter of Doctor Weaver, and I commend it to the notice of the profession with that object in view.

Having lived for twenty-one years in the life-giving atmosphere of Colorado, and for ten years in this District where every breath one draws extracts energy and nerve force even to a well man, and having once regained in the west the health I had lost in the east, I can appreciate the benefits which Doctor Weaver derived by living in the life-giving atmosphere of Idaho, but I can not, from my experience, in justice to humanity or my profession, allow such selfishness to control my relations with my fellow-man and brother practitioners. In two years, two "statutes" have been passed compelling "interchange certificates" to be received, Vermont and the District of Columbia, and fifteen other States have started to take it up, and all I can say is, God grant that the scales may fall from the eyes of the selfish, and the true light enter into the souls of others, that within the next two years the "interchange of license" be universally adopted wherever the "Stars and Stripes" wave and its protecting power is established.

EMORY A. BRYANT, D. D. S.,

Washington, D. C.

DOES THE ENAMEL GROW?

Some fifteen years ago, I wrote an article for this journal, under the caption, "Do the Teeth Grow?" which created considerable discussion. In substance, the article mentioned cases of "spots" on the teeth changing position in a similar manner as spots on the finger-nails.

My attention was called recently to a young lady, probably twenty-five years old. When I saw her first, two years ago, both superior central incisors had "spots" in the enamel, one crescent-shape, the other nearly round. These spots were in the enamel, not merely stains, and no amount of polishing could remove them. They were situated about one-third the length of the teeth from the gum.

A few days ago I saw the lady again, and found to my surprise that one of the spots had disappeared (the crescent-shape), the other was half gone, the remaining half just at the cutting-edge of the tooth, nor was the length of the tooth shortened in the least.

Will some of our scientific brothers please explain?

E. H. RAFFENSPERGER, D. D. S.,
Marion, Ohio.

THE ADMINISTRATION OF CHLOROFORM.

An article appeared in *THE SUMMARY* of April, 1905, by Doctor Teter who kindly takes exceptions to some points advanced in my article in February number. He evidently did not fully understand my position, or it was not sufficiently lucid.

The doctor's magnanimity in confirming my article as to the danger of chloroform upon the nerve tissue as usually administered is fully appreciated, but I was surprised that he believed the usual procedure was correct; but as he was good enough to warn his brother dentists of its danger (as I had previously warned them) and advised them very correct (legally), to have on hand plenty of chloroform, inhaler, oxygen, hypodermic syringe, sterilized water, nitroglycerine, nitrite of amyl capsules, strychnia, forceps, etc., etc., then proceed to get the confidence of the patient, to prevent fear.

What I wish to do is not to remove the fear from the patient; but the operator. My observation is that the operator's fear, which is apparent to the patient, should be first considered. As all of these supposed restoratives, regardless of the confidence of the patient, sometimes fail.

It would be well perhaps to try to discover the cause of conditions calling for restoratives. The past century will be known as the cure of or experimental age; the coming Twentieth Century the cause of age—medically. The quoting of old dogmas in medicine is past. If you are not prepared to prove that they are correct; these dogmas are mostly imported, and originated at a time when original research was impossible.

There are two principles involved in the act of administering of any vapor anesthetic;

By the mouth—or suction;

Through the nostrils or—inhalation;

Placing the patient in the position as described in February article is essential for proper inhalation. The degree, forty-five, is not essential, but the degree should be governed by the position being comfortable, making it easy to breathe by inhalation through the nostrils, and difficult to breathe through the mouth by suction, confining the anesthetic influence in the lungs. And its effect to the cranial nerve center sucking the anaesthetic into the stomach, the contents becomes saturated with chloroform vapor, as is proven by examination of the vomit. And it is reasonable to believe that if the patient has not the vitalizing nerve force to overcome the effects of the accumulated chloroform vapor in the stomach, the conditions would be serious and the patient's life in jeopardy. Even if death is avoided the bad effects produced upon the nervous system is easy to understand, knowing that the pneumogastric nerves are more or less paralyzed by the chloroform vapor in contact. And is in an abdominal distressed condition—as the pneumogastric nerve supplies the essential organs of respiration with vitalizing nerve force.

The motor and sensitive nerve fibers extending nerve influence to the pharynx, oesophagus, stomach and heart. Through its connecting branches the auricular pharyngeal, superior and recurrent laryngeal, curvical and thoracic cardiac, anterior and posterior pulmonary, oesophageal and gastric, etc., which enlarges its field of nerve force influence. And any condition interfering with its nerve vitalizing force, it is reasonable to believe, would cause a systematic nerve distress of a serious nature, with unfortunate sequelli possibilities. It is doubtful if chloroform administered in correct pose by inhalation could enter the stomach. Thus the main point of danger and inconvenience is avoided. Many a good dog has been killed by being given a bad name.

True inhalation with the head thrown back is impossible. "Throwing the head backward" does not relieve the lungs of vapor; but does assist the vapor escaping from the stomach, and is so understood by physicians. If the chloroform doing the damage was in the lungs, the head should be thrown slightly forward. (See spasmodic asthma and croup.) As "by inhalation," does away with stomach irritation, gravitating tongue, etc.

With these conditions eliminated, the proficient dentist will

find chloroform as controllable and safe as any other of the anesthetics giving less perfect results as to profound anesthesia, so very essential in prolonged operations, extracting roots, etc.

No anesthetics should be given on full stomachs, is well understood by physicians.

For technics, see February number of *THE SUMMARY*.

E. G. SMITH, D. D. S.,
St. Paul, Minn.

THE "GUARANTEE MAN."

In reading the article, "The Guarantee Man," brings to my mind some experience I've had in that line.

A patient says, "Doctor, do you guarantee this work?" referring to a large gold filling.

I say, "No, I do not guarantee any of my work, but if my work is not satisfactory, come back and I'll make it satisfactory. I mean within a reasonable length of time, say a year, I will replace it without expense to you."

I also draw this illustration: "When you are sick, does the physician guarantee to cure you? No; he says, 'I'll do the best I can.'"

This is a profession and not a mercantile business. I think if dentists would tell this to their patients in a nice way, the patients would see more clearly why we do not and cannot guarantee our work.

F. R. MERZ, D. D. S.,
Dixon, Ill.





SUGGESTIONS

ANTISEPTIC CAVITY VARNISH.

B. L. Thorpe, St. Louis.

Gum copal, dissolved in ether, alcohol, or chloroform, to which is added 10 per cent hydronaphtol, forms an adhesive and antiseptic cavity varnish of great merit.—*Western Dental Journal*.

THE OPEN-FACE CROWN.

William H. Trueman, Philadelphia.

Unquestionably the objections urged against open-face crowns are well founded. At their best they have elements of weakness difficult to overcome. Nevertheless, properly made and properly placed, they have a field of usefulness all their own. Upon bicuspid teeth I have found them satisfactory and durable, especially so in cases which admit of the open-face being entirely open. When the bar connecting the two sides at the gum margin can be dispensed with, the sides can be made to spring apart as the crown passes over the tooth, and to embrace more closely the tooth-neck when it is in place. The peculiar shape of the canine and incisor teeth not only increases the difficulty of making the crown fit accurately, but it also hampers us when cementing it in place. We miss the piston-like action of the tooth which assists so much in forcing the cement solidly into the intervening space when a full crown is pressed into place. Not only does the cement escape through the open face, but the screw-like motion necessary when manipulating it into place so displaces the cement that a thorough and compact filling of the space between the tooth and the crown becomes impossible. As a natural result the cementing is imperfect. To so shape the

tooth as to avoid this would, in many cases, result in so serious a mutilation that devitalization and excision might be preferable.

In a recent English dental Journal a suggestion is made that perhaps may have practical value. The writer suggests, instead of mutilating the tooth, to build it up at the neck by first fitting to each side of the neck of the tooth a piece of thin gold plate; to hold this in place one or two small holes are drilled through the plate and extended a short distance into the tooth, into which pins are fitted and soldered to the plate. Plate and solder are now added in sufficient amount to give the tooth a desirable shape, and filed to conform to the contour of the tooth. These are polished and cemented in place. When the finished crown extending over these additions is in position, there is no risk of their being displaced. Carefully carried out, this expedient seems promising and is well worth a trial.—*Dental Brief.*

METHOD OF REMAKING PLATES.

Bessie B. Bennett, Baltimore, Md.

For many reasons it is often necessary to duplicate a plate, and if the expression and articulation are especially good, the operator is desirous to make as near as possible a fac-simile of the original.

This may be carried out to the very letter, and a virtual recast of the original denture constructed with no help from the patient but the old plate itself.

If the plate be broken, wax it together carefully—being especially careful that no wax be on the lingual and palatal portion as the case may be in lower or upper.

Now wet the plate, pour some thickly mixed plaster in it—thus forming your model. Allow this to become hard, and without attempting to remove the plate, invert the model (plate attached) just as though you were investing a warped model. Pour the upper portion of the plaster, close the flask tightly and place the bolts in position, just as though you were preparing to vulcanize.

Now select a vessel (tin, porcelain or enamel kitchen ware) deep enough to hold the flask and have about three inches of depth over. Fill the vessel with ordinary molding sand, place

the flask therein and place the pan on the back of a stove or over a slow gas flame, allowing the sand to heat through gradually. As the sand becomes warmed the heat may be increased. Keep this up until the sand bubbles—let it boil for several minutes.

The flask may now be opened and the old rubber found so soft that it may, with ease be entirely removed, new rubber packed in its place and vulcanized as usual—thus gaining an exact reproduction of the old plate without many preliminaries.

This idea is not original with myself—but I am not able to give "Honor to whom honor is due," as the name of the supposed originator is not known to me.—*American Journal of Dental Science*.

MIXING OF CEMENT FOR SETTING CROWNS.

B. J. Cigrand, Chicago.

It is very important that we give careful attention to the manner in which we mix the cement. If we hope to perfectly anchor the crown, we must be certain to incorporate a liberal amount of powder into the mixture and stir rapidly, since the fluid with but a sparing quantity of powder cannot endure a strain. Even the temperature under which the cement is formed has much to do with the strength of the cement. Cement gives the most favorable results when mixed in a temperature of 75° F. For some time I have mixed the cement on a porcelain bottle having four flat surfaces, and fill the bottle with cold water in hot summer weather, and hot water in cold winter weather. During the extremely warm weather I have resorted to this method, and am decidedly pleased with the good results.—*American Dental Journal*.

TO PROTECT INLAYS FROM MOISTURE AFTER SETTING.

C. B. Rohland, Alton, Ill.

To prevent moisture reaching the inlay after seating it in place, cover with the surplus cement and firmly press a piece of tin foil over the whole. This will adhere for hours and is, of course, absolutely impervious to moisture.—*Dental Review*.

CELLULOID CEMENT.

Dr. J. Douglas.

For making celluloid cement for mending casts, dissolve the celluloid in acetone, as it is better than ether and alcohol. This cement may be profitably used in place of collodion on wounds, etc. like court plaster, to protect from the air.—*Dental Register*.

MAKING DIE DIRECT FROM PLASTER IMPRESSION.

Harry W. Bates, Denver, Col.

The plaster impression having been taken as usual, paying particular attention to having the plaster run high up under lip and cheeks, you may proceed as follows: Build up with soft moldine (which has been previously softened by rolling with bottle in glycerine) or plaster whenever the impression is low so as to keep metal from running over and to give thickness to die for strength. Place on Bunsen burner and allow to dry for one hour or till fairly well dried out. Melt metal, having enough for two dies. Pour into plaster impression, slowly patting metal into deep portions and undercuts with wad of cotton covered with old rubber dam. When sufficiently cool, separate, which will be very easy, as metal contracts slightly upon cooling. Repeat the operation so as to have two metal dies. After which varnish impression and run up plaster cast for final swaging. Work over the dies to start as over any metal cast. When the sides are forced down and surplus trimmed off, cover plate and die with rubber dam and place in Parker swager, using finest mustard-seed shot made. After hitting a few blows, remove from swager and after going through pickling bath with plate, anneal and repeat in swager till perfect in fit, changing to other die as the first die becomes bruised or dinged. Giving it a final swaging on the plaster cast made last. When trimmed and fitted to mouth the teeth may be on as the individual operator may desire. The metal I use is made out of 3 parts of lead, 5 parts tin, 3 parts of bismuth and 1 part of cadmium. This I find works very satisfactorily and is the lowest price low-fusing metal made. In melting metal, first melt lead, and fuse tin, then cadmium and bismuth into them, as the bismuth

oxidizes very easily and wastes. It will be necessary to replace the bismuth so lost by adding to original mass small pieces occasionally. Always dissolve lead off surface of plate before annealing by passing through some acid pickle. One composed of sulphuric acid and water, one part of each, is very good.—*American Journal of Dental Science*

TAKING THE BITE.

Dr. Hugo Franz.

In taking the bite I request my patient to press tip of tongue tightly against posterior border of trial plate, impressing upon him the importance of keeping the mind on this procedure. After that I ask him to close the jaws. The resultant bite is almost always correct.—*Dental Review*.

MANIPULATION OF BROACH IN FILLING ROOTS.

Dr. A. P. Burkhart.

The filling of root canals where semi-liquid preparations are used can be more easily and successfully accomplished by rotating the smooth broach in the canal, instead of pushing it. Repeat until the canal is pretty thoroughly filled, then with direct pressure complete operation.—*Forum*.

TO INVEST WITHOUT CHANGING FORM OF MATRIX.

Place a small amount of the freshly prepared investment compound on the surface of the matrix to be invested, and with an ordinary chip-blower force the investment over the surface by carefully working the bulb. By the time the balance of the investment is prepared to receive the matrix the investment previously placed over its surface will have become hard enough to retain the form of the matrix while it is being forced down into the investment. By employing a chip-blower the investment compound is forced over the surface of the matrix effectually and without danger of changing its form.—*Dental Review*.

TO CLEAN A DENTAL ENGINE HANDPIECE.

H. Darling, Bay City, W. S., Mich.

Take a common glass tube—such as gold cylinders are contained in—and fit a good cork tightly into it. Keep a sufficient quantity of kerosene oil in the tube to cover the handpiece when placed in it. When the handpiece becomes sticky and the bearings rusted, plunge into the tube of oil and run the engine rapidly for a short time. A second bath will rarely be necessary to cleanse bearings and prepare it for a little suitable oil.—*Dental Review*.

TO PREVENT ADHESION OF CEMENT TO INSTRUMENTS.

Grafton Munroe, Springfield, Ill.

To prevent the adhesion of soft cement to instruments while operating, keep in a convenient place a small vessel, similar to the old-style salt-cellar, filled with violet talcum powder. Occasionally insert the instrument in use into the powder and it will effectually prevent the adherence of the cement to the instrument. Any talcum powder will be found useful, but violet is preferred on account of the pleasant odor. The same is applicable in working gutta-percha.—*Dental Review*.

A HINT ON IMPRESSION TAKING.

F. W. Stephan, Chicago, Ill.

To prevent the plaster from flowing down the patient's throat when taking an impression, prepare the tray as follows: Puncture the impression tray near the heel, making several holes about a quarter of an inch in diameter. Build up the heel with wax to reach the palate, and from this carry a piece of sheet wax forward under the tray. When taking the impression the surplus plaster will be forced through the holes and carried forward by the sheet of wax under the tray, thus effectually protecting the throat. The same result may be attained by cutting a V-shaped piece from the rear of the tray and building with wax, as described above.—*Dental Review*.

TO SOLDER A GOLD CLASP TO ATTACHMENT ON A RUBBER PLATE.

Mark G. McElhinney, Ottawa, Canada.

Sometimes a gold clasp can be soldered to its attachment on a rubber plate by suspending the plate in a glass of water and allowing the metal part to project through a hole in a piece of asbestos. This method, although limited in application, will be found useful in some cases.—*Dental Review*.

A REMEDY FOR TOOTHACHE OR NEURALGIA.

R. G. Joslin, St. Ignace, Mich.

For those occasional cases of toothache or neuralgia which defy local treatment for the time, the following has given me good results, varying the dose as conditions might require:

R Phenacetin gr. xv
 Ext. Gelsemium gr. j ss
 Met ft. in chart. oz. v
 Sig.—One when in pain. Repeat in two hours if necessary.

It will seldom be necessary to repeat in less than 7 or 8 hours.

INVESTING FOR SOLDERING.

Before filling the impression the method ultimately to be observed in investing the case for final soldering should be noted. If the "abutment pieces" are to remain *in situ* upon the model, after trimming it down and investing, and during the process of soldering, which is always advisable in extensive cases, it must be carefully observed that their interior is well filled with the plaster in pouring the model, in order to prevent air spaces which not infrequently result in fusing the parts during the process. If the "abutment-pieces" are to be detached from the model, however, previous to investing, it is indicated in small cases, provision for facilitating the same should be observed by partially filling their interior with melted wax.—*Items of Interest*.

PRESSURE ANESTHESIA FOR SENSITIVE DENTINE.

H. E. Brubaker, McComb, Ohio.

For the painless preparation of cavities for filling use cocaine with pressure and you will have very gratifying results. Always apply the rubber dam. It should be the aim of every dentist to alleviate pain as much as possible and by the careful use of cocaine it can be done to a great extent.

A WAX BITE BEST.

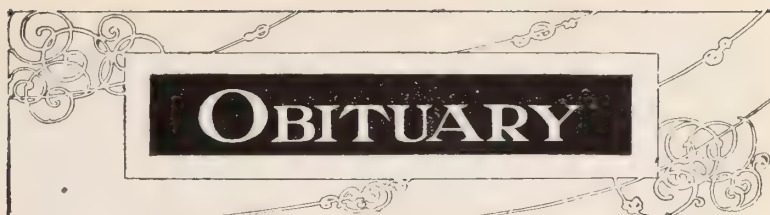
A wax "bite" is to be preferred to modeling composition or other materials, because of the ease with which it may be adjusted to the model without danger of breaking off the plaster teeth; and a *plaster* impression is *always* indicated because the employment of any material for this purpose which will *draw* perceptibly in removing from the mouth is not reliable, and hence the accurate replacement of the parts in such impressions is not insured.—*Items of Interest.*

QUICK BRIDGE REPAIR.

Louis S. La Pierre, South Bend, Ind.

When called upon to quickly repair a bridge containing porcelain facings where a band may have split or a crown worn through at the occlusal surface, to avoid investing and unnecessary delay, the following method will be found effective: Clean the bridge thoroughly and wrap securely about the facings a sufficient amount of asbestos fibre to fully protect them. Grasp the bridge at this point with pliers in such a manner as to hold the bridge and asbestos securely. Hold the part to be soldered over a Bunsen flame and by careful handling the solder will flow where wanted. Allow parts to cool before removing asbestos and there will be no danger of checking the facings.—*Dental Review.*





OBITUARY

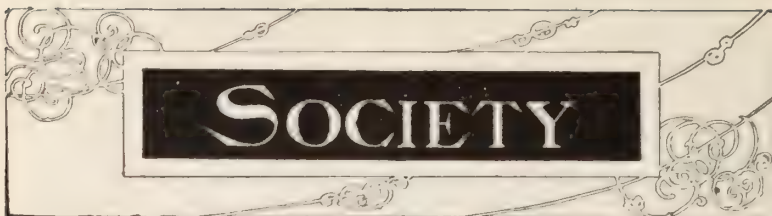
EDGAR J. WAYE, SANDUSKY, OHIO.

Doctor Waye was born in central New York in 1826, where he resided until he reached his majority. He began the study of dentistry in that State, and continued to practice there for a short time before settling in Ohio. In 1858, Doctor Waye opened an office in Sandusky and continued in practice there until 1891, when he retired. From that date until his decease, his health gradually failed. He was a member of the Ohio State Dental Association and of the Northern Ohio Dental Association, of which latter he was president at one time. He was quite a proficient writer on dental subjects, contributing many able articles to the different journals.

The honorary degree of Doctor of Dental Surgery was conferred on him by the Ohio Dental College in 1874.

He was a man of strong mental vigor, and always ready to lend his sympathy and assistance to the younger members of his profession. He died April 2, 1905, at the ripe age of seventy-nine years, leaving a record of sterling integrity and upright character, having enjoyed the confidence and respect of all who knew him, especially members of his profession.





WISCONSIN STATE DENTAL SOCIETY.

The thirty-fifth annual meeting of the Wisconsin State Dental Society will be held at Oshkosh, Wisconsin, July 18-20, 1905. An excellent program of papers and clinics is being prepared by the Executive Committee. All ethical members of the profession are invited to meet with us.

W. H. MUELLER, *Secretary*.

Madison, Wis.

DENTAL COMMISSIONERS OF CONNECTICUT.

The Dental Commissioners of the State of Connecticut hereby give notice that they will meet at Hartford on Thursday, Friday and Saturday, June 8, 9 and 10, 1905, respectively, to examine applicants for license to practice dentistry, and for the transaction of any other proper business.

The practical examination in operative and prosthetic dentistry will be held Thursday, June 8, at 8:30 a. m., in Putnam Phalanx Armory, corner Haynes and Pearl Streets.

The written theoretic examination will be held Friday and Saturday, June 9 and 10, at the Capitol.

All applicants should apply to the Recorder for proper blanks, and rules for conducting the examinations.

Application blanks must be carefully filled in and sworn to *in duplicate*, and with fee, twenty-five dollars (\$25.00), filed with the Recorder on or before June 1, 1905.

By direction of the Dental Commissioners.

J. TENNEY BARKER, *Recorder*.

INTERSTATE DENTAL FRATERNITY.

The Board of Governors of the Interstate Dental Fraternity will convene for the annual business meeting of the Order in Buffalo, on

Monday, July 24th. The annual banquet will occur during the week, and due notice thereof will be sent to the members as soon as arrangements can be made and the exact date fixed. It is hoped that the Fraternity will meet in large numbers on this occasion.

DR. R. M. SANGER, *National Secretary.*

East Orange, N. J.

MICHIGAN DENTAL ASSOCIATION.

The forty-ninth annual meeting of the Michigan Dental Association will be held at Detroit, Mich., July 10, 11 and 12th. An unusually attractive program has been provided for, and the entertainment features, as arranged by the Detroit Dental Society, are very complete.

A. L. LeGRO, *Secretary.*

VERMONT BOARD OF DENTAL EXAMINERS.

The next meeting of the Vermont Board of Dental Examiners for the examination of candidates to practice dentistry, will be held at Montpelier, July 5, 6 and 7, 1905, commencing at two o'clock in the afternoon of July 5.

Headquarters at the Pavilion Hotel.

All applications, together with the fee, \$25.00, must be in the hands of the secretary not later than June 25.

For information apply to

GEO. F. CHENEY, *Secretary.*

St. Johnsbury, Vt.

AMERICAN SOCIETY OF ORTHODONTISTS.

The next meeting of the American Society of Orthodontists will be held at Chicago, September 28, 29 and 30, 1905.

ANNA HOPKINS, D. D. S., *Secretary.*

St. Louis, Mo.

INDIANA STATE BOARD OF DENTAL EXAMINERS.

The Indiana State Board of Dental Examiners will hold their next regular meeting at Indianapolis, in the Capitol, June 13, 1905.

Applicants for examination must possess diploma from recognized college or must have had five years' dental practice under a reputable practitioner of this State. Examination fee, \$20.

No special examination granted to practitioners already in practice. Reciprocal interchange of license with the State of New Jersey in accordance with the provisions of the Asheville resolution. Applications for examination must be made to the secretary by June 8.

F. R. HENSHAW, *Secretary*,

Middletown, Ind.

"F. D. I."—INTERNATIONAL DENTAL FEDERATION.

The next annual meeting of the Executive Council of the Federation Dentaire Internationale will convene in Hanover, Germany, August 7, 1905, immediately following the annual meeting of the Central-Verein Deutscher Zahnärzte.

Announcement of the program for the meeting and the projected work for the Federation during the present period will shortly be made through the dental journals and through the official bulletin of the Federation.

EDWIN C. KIRK, *Secretary-General*.

NATIONAL DENTAL ASSOCIATION.

The ninth annual session, to be held in Buffalo, N. Y., July 25 to 28, inclusive.

The Hotel Iroquois has been selected by the local Committee of Arrangements as headquarters, where all general sessions of the Association and of the Sections will be held. The clinics will be held at the rooms of the Dental Department, University of Buffalo.

Rates at the Hotel Iroquois are: Single room, per day, \$1.50, \$2.00 and \$2.50; rooms for two persons, \$3.00 and \$4.00; single rooms with bath, \$3.00 and \$3.50; rooms with bath for two persons, \$5.00, \$6.00, \$7.00 and \$7.50; all rooms on the European plan.

The usual railroad rate of one and one-third fare for the round trip, certificate plan, has been arranged for by the Executive Committee. All pay full fare going, taking the proper certificate therefor from the ticket agent, which when properly vized at the meeting, entitles the holder to return for one-third the regular rate.

Tickets going may be purchased from July 20 to 26, and are good returning to and including August 2.

Both the general officers and those of the Sections have been working hard to provide an interesting and instructive program and a large attendance is expected.

A. H. PECK, *Recording Secretary*.

92 State Street, Chicago, Ill.

KENTUCKY STATE BOARD OF DENTAL EXAMINERS.

The Kentucky State Board of Dental Examiners will meet for examination of candidates at Louisville, June 6, 1905, in the Gaulbut building, commencing at 9 o'clock a. m. Candidates will be examined in following subjects: Anatomy, Physiology, Materia Medica, Pathology, Histology, Operative Dentistry, Oral Surgery, Chemistry, Metallurgy and Prosthetic Dentistry.

A general average of 75 per cent. is required. Candidates must come prepared with instruments (except engine) and material (gold) to fill at least one tooth; also a metal case of not less than four teeth (bridge or plate) invested, and ready to solder before the Board. Candidates will be required to certify that all work on metal case was done by them.

Application for examination must be made on blanks furnished by the secretary, and must be accompanied by a fee of \$20.00.

Candidates must be graduates of reputable dental colleges.

KENTUCKY STATE BOARD OF DENTAL EXAMINERS.

By C. R. SHACKLETTE, *Secretary*.

628½ Fourth Avenue, Louisville.

COMMENCEMENTS.

University of Maryland, Dental Department, graduates, 70.
Baltimore Medical College, Dental Department, graduates, 31.
Vanderbilt University, Dental Department, graduates, 36.
Ohio Medical University, Dental College, graduates, 58.
Missouri Dental College, St. Louis, graduates, 56.
Louisville College of Dentistry, graduates, 105.
Marion Sims Dental College, St. Louis, graduates, 65.
Birmingham Dental College, graduates, 10.
New Orleans College of Dentistry, graduates, 31.
Western University of Pennsylvania, graduates, 60.
North Pacific Dental College, Portland, Ore., graduates, 41.
University of Tennessee, Dental Department, graduates, 34.
Omaha Dental College, graduates, 33.
University of Illinois, College of Dentistry, graduates, 69.
Southern Dental College, graduates, 40.
Atlanta Dental College, graduates, 76.
Baltimore College of Dental Surgery, graduates, 79.
Chicago College of Dental Surgery, graduates, 168.
Barnes Dental College, St. Louis, graduates, 7.
Indiana Dental College, graduates, 71.

AFTERMATH

PERSONAL AND MISCELLANY.

To Exempt Dentists from Jury Duty.—A bill has been introduced in the Florida legislature exempting dentists from jury duty in that State.

Reappointed Member of Examining Board.—Dr. John R. Beach, of Clarksville, has been reappointed a member of the State Board of Dental Examiners.

Fined for Practicing Without a License.—Doctor Creighton, of Los Angeles, Cal., plead guilty to the charge of practicing without a certificate April 13th, and was fined \$50.

Dentists Will Take Half Holiday.—The dentists of Elyria, Ohio, by mutual agreement, will close their offices every Wednesday afternoon from 12 to 6 o'clock from May 1st until October 1st.

Honorary Dental Degree Given Dr. Watson.—At the annual convocation of the Royal College of Dental Surgery, the honorary degree of M. D. S. was conferred on Dr. Watson, of Georgetown.

Iowa State Dental Society Officers.—C. M. Work of Ottumwa, president; F. B. James of Wilton Junction, vice-president; C. E. Bruner of Waterloo, secretary; Miss Mae Reynard of Osceola, treasurer.

Tibetans Have Excellent Teeth.—It is said that the Tibetans possess the most perfect teeth in the world, although there is not a single tooth-brush in the whole country, and no form of cleansing the teeth is ever practiced.

Dentist Appointed to English Navy.—A dentist has been appointed to the British navy. He is the first one that has ever held office in that branch of the English service and has been assigned to the Portsmouth navy yard.

Dentist Injured While Extracting Tooth.—Doctor McKay of Rome, Ga., was severely injured while extracting a tooth for a patient

suffering with toothache. He was under the influence of chloroform and while the doctor was extracting the tooth the man kicked him breaking two ribs.

Illinois State Dental Society Officers.—The Illinois State Dental society chose Springfield for its next session and elected the following officers: President, S. F. Duncan, Joliet; first vice-president, L. W. Skidmore, Moline; secretary, Elgin MaWhinney, Chicago; treasurer, C. P. Pruyn, Chicago.

Fires.—Fire broke out in the office of Dr. W. J. Lider of Pittsburg, Pa., April 23d, causing a loss of \$1,500. Doctor Meahaus' dental office in Sunfield, Mich., was badly damaged by fire, April 12th. Loss not estimated. Dr. Samuel Hunt, Trenton, Tenn., entire office and equipment burned. Insurance \$500.

Established in London.—P. O'Connell Finigan, D. D. S., University of Michigan, formerly with DuBouchet, D. D. S., of Paris, France, who won his suit against the Syndicate of French Dentists, has established himself at No. 5 Harley street, Cavendish Square, W. London, England. He says he cannot do without The Dental Summary.

Indian Territory Association.—The Indian Territory Dental Association closed April 28th, with the election of the following officers: President, Doctor Borll, of Muscogee; vice-president, Dr. J. T. Long, South McAlester; secretary, Dr. H. A. Strickle, Jr., Muscogee; treasurer, Dr. A. A. Walter, Checotah; executive committee, Dr. J. E. Wright, South McAlester, and Dr. E. J. Mills, Poteau.

Connecticut Dental Association.—The following are the new officers elected: President, Edward B. Griffith, Bridgeport; vice-president, Albert W. Crosby, New London; treasurer, W. O. Beecher, Waterbury; secretary, W. V. Lyon, Bridgeport; librarian, R. H. Keeler, New London; editor, A. H. Spencer, Westerly, R. I.; executive committee, Edward S. Rosenbluth, chairman, Bridgeport; F. W. Brown, New Haven; C. C. Prentiss, Hartford.

Fourth District Dental Society.—The Fourth District Dental Society at its meeting at Schenectady, N. Y., April 18th, elected the following officers: President, Dr. M. E. Foote, Whitehall; vice-president, D. E. R. Rhinehart, Schenectady; secretary, Dr. Frank Grennan, Schenectady; treasurer, Dr. E. Doolittle, Saratoga; correspondent, Dr. R. H. Whitmyer, Schenectady; executive committee, Drs. W. S. Rose, Schenectady; Pinerman, Fort Plain, and George Brown, Glens Falls.

A Woman Dental Student Carries Off Honors.—At the commencement exercises of the University of Tennessee Dental Depart-

ment, the first honor medal was awarded to Mrs. Mae Louise Neville of Christian County, Kentucky. She graduated first in a class of thirty-four, her mark for the three years' course being 1165½ out of a possible 1200. Mrs. Neville's husband, W. H. Neville, is a dentist in Christian county, and his wife will join him in practice. Her mark is the highest ever made in the University.

Dentist an Inventor.—Dr. A. A. Petersen, a dentist of Muscatine, Iowa, is the inventor of an apparatus for marking or mutilating currency. Its object is, that as soon as a safe is tampered with, the apparatus will spoil the currency which is deposited therein. This apparatus will do this work to perfection and the money thus treated would be good only for the owner for redemption purposes, being marked in such a way that it could easily be identified. Burglars would find this to make the safe blowing business profitless, and it would tend to stop bank robbery.

Marriages.—Dr. Frank R. Houston and Miss Jessie Gray, both of Green Bay, Wis., were married April 10th. Dr. Zacharie Eudlitz of Paris, France, and a graduate of University of Pennsylvania, and Miss Minnie DeHaan of Philadelphia, were married April 17th. Dr. Clarence Beard of Waynesboro, Pa., and Miss Katherine D. Welty were married April 11th. Dr. A. I. Parker of Barbourville, Ky., and Miss Harriett Teague of Teague, Ky., were married April 20th. Dr. G. A. Mills, Stratford, Ill., and Miss Nora B. James of Bloomington Ill., were married April 25th.

Burglaries.—The offices of Dr. E. C. Condict and the N. Y. Dental parlors of Trenton, N. J., were entered and \$100 of gold crowns taken. The following offices at Springfield, Mass., were entered and \$200 in gold foil taken: Dr. D. Hurlbut Allis, Dr. Louis Y. Schermerhorn, Dr. Chas. H. Plumstead, Dr. R. A. Baldwin, Dr. A. J. Flanagan. The following offices were entered in Ithaca, N. Y.: Dr. R. T. Stuart, loss \$20; Dr. H. B. Hamilton, loss \$66, and Dr. C. J. McGuire, loss \$20. Dr. Moylan Field of Petersburg, Va., loss \$20. Thieves entered the home of Dr. F. P. Farrow of Washington, N. J., and stole \$10 worth of gold caps and his Scotch collie.

Washington Dental Board Sustained.—The jury in the \$50,000 damage suit of Dr. Edwin J. Brown, the Seattle dentist, against the members of the State Board of Dental Examiners for the year 1903, which has been stubbornly fought in the Superior Court here for the past six days, took but five minutes in returning a verdict for the defendants. Doctor Brown alleged discrimination against him as an advertising and non-ethical dentist in refusing to grant him a license upon examination, and alleged conspiracy to drive him out of business in this State. He conducts offices in Seattle, Tacoma, Spokane and Portland. The court charged that, if the Board had acted as a

body no damages could be awarded, as it was a quasi judicial body with discretionary powers.

The Cutler Mountain Victim Identified by Dental Work.

—A special dispatch from Colorado states that Mrs. Meda Kempter, wife of Richard Kempter of Syracuse, N. Y., has identified the body of a woman found on Cutler mountain as that of her daughter, Bessie Bouton, and has started with the body for New York. The identification was made complete by the dental work on the teeth and by a scar on the right side of the left forefinger as well as by the hair. The mother charged that Milton Franklin Andrews attempted to kill the girl with poison while on the Pacific coast. The body of Bessie Bouton was found on Cutler mountain, south of Colorado Springs, on December 17, 1904. The woman had been shot in the head and every article of her clothing removed. The body had been placed face downward and gasoline had been poured over the corpse and fired, destroying the face, except the dental work.

Deaths.—Dr. Henry A. Downing, of Cincinnati, O., died April 13th of blood poison, caused from examining decayed teeth with his index finger and breaking the skin on a sharp edge. In February he sustained a paralytic stroke and soon after his mind became affected by the severe pain; age 68 years. Dr. Chas. M. Hitchcock of Utica, N. Y., died April 8th, age 55 years. Dr. Anson Stone of Dunkirk, N. Y., died April 13th. Dr. R. U. Dubois of Greensboro, Ala., died April 15th. Dr. Chas. A. Willard of Baldwinsville, N. Y., died April 8th of paralysis; age 60 years. Dr. Joel C. Parker of Grand Rapids, Mich., died April 16th; age 75 years. Dr. Isaac Newton Merritt of Battle Creek, Mich., died April 18th; age 55 years. Dr. Ernest Seeger of Manitowoc, Wis., was found dead in his dental chair where he had shot himself, April 15th; age 51 years. Dr. T. J. Holder, Gallatin, Tenn., died suddenly May 5th; age 72 years.

Well-Known Dentist Dead.—Dr. Joseph Anthony Bowman, for thirty-eight years a prominent dentist of Minneapolis, died in May at Bethel, Vt., where he moved his family last fall. Dr. Bowman was born in Barnard, Vt., in 1837, and was educated in the common and select schools of his native town and at the academies of Royalton and Newbury, Vt. In 1855 he commenced the study of his profession and in 1858 moved to Canton, N. Y., to practice, in partnership with his brother. In 1862 he entered the army and was assigned a member of the post band at Alexandria, Va., under command of General John P. Slough, military governor of Virginia. At the close of the war he went to Minneapolis and began the practice of his profession. In 1870 he entered into partnership with Dr. E. M. Griswold. This partnership continued until 1882. In 1884 Dr. E. T. Weeks and Dr. M. G. Jenison were admitted to partnership, under the name of Bowman, Weeks & Jenison. In 1891 this firm was dissolved and for a

long time Dr. Bowman was in partnership with Dr. A. E. Peck. Last autumn he decided to retire and return to his native State. He purchased a home at Bethel, which is just a little way from his birthplace, Barnard. Dr. Bowman leaves a wife and two brothers, Dr. A. G. Bowman of St. Louis and Professor Edward Bowman, the well-known organist of Brooklyn, N. Y.

Patents of Interest to Dentists Recently Granted.—

785548—Dental chair, Aaron P. Gould, Canton, Ohio.

785619—Dental matrix retainer, Closson M. Leffingwell, Little Falls, Minn.

185529—Dental jaw brace, Charles A. Thomson, Belleville, N. J.

785999—Connection for artificial teeth and dental plates, Samuel S. Bloom, Philadelphia, Pa.

785715—Manufacture of artificial teeth or the like, Frederic A. J. Cournand, Paris, France.

785904—Waxing-up tool for dental trial-plates, Andrew May, St. Catherine's, Canada.

785992—Shade-guide for artificial teeth, George H. Whiteley, York, Pa.

785993—Mold for artificial teeth, George H. Whiteley, York, Pa.

785788—Dental tool, Raimund Zentner, Wiesbaden, Germany.

786748—Artificial denture, Benson W. Fordyce, Bedford, Iowa.

786279—Apparatus for making dentures, George P. Franklin, Philadelphia, Pa.

786662—Dental-engine attachment, John E. Morgan, Emporia, Kans.

786678—Dental-floss holder, Clifton M. Rawlins, Cleveland, Ohio.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.





REGULAR CONTRIBUTIONS

SOME THINGS ABOUT ALLOYS THAT ARE NOT GENERALLY UNDERSTOOD.*

BY M. L. WARD, D. D., SC. ANN ARBOR, MICH.

It is not without reason that the eyes of the whole profession have been fixed attentively upon the subject of amalgam, since its introduction as a filling material about a century ago. A liberal review of the literature reveals that it at once attracted the attention of all, the one, but smaller part adopting it and the remainder condemning it. As crude a product as it was then, its use continued to grow principally through its one specific merit, viz., that of easy insertion. There are still sections of the country where this and similar conditions have not materially changed, as may be seen by as careful and persistent study of the subject as I have pursued for the past two years. The impetus given the subject by its earliest advocates was soon renewed by more enthusiastic ones who kept it constantly before the profession till the long-to-be-remembered Doctor Black did his work in 1895-6. He proved beyond doubt that many of the alloys made previous to his work were in the range of greatest shrinkage, and contained large quantities of the two constituents, viz., copper and tin, which in conjunction with this shrinkage were largely responsible for the extreme discoloration of tooth structure that accompanied the use of these alloys. The history of the hard alloys dates no further back than Doctor Black's work. Let this be thoroughly understood. Articles appear in our journals as late as January of

*Read before the Odontological Society of Western Pennsylvania, held in Pittsburgh, and the Pennsylvania State Dental Society, held in Philadelphia,

1905, with quotations from Dr. J. Taft's operative dentistry and from Dr. A. J. Bennett's article in the *American System of Dentistry*, to show that gold is superior to amalgam as a filling material while nothing definite was known about amalgam and no one had even approached definite results till Doctor Black did his work in 1895-6. These two men were prominent in the profession and very proficient in other lines of work, but what did they know about amalgam alloys? Why should their work be used as references at this late day? Farther on in the same article we find, "Still we have little evidence that the alloys now in use are very greatly superior as tooth preservers to those of many years ago, which were so objectionable on account of discoloring the teeth." I ask of these men to begin with the new epoch in the history of amalgam and study it carefully and diligently before making such statements about a material admittedly inferior to gold, but certain to occupy a prominent place among our filling materials.

As a result of Doctor Black's work, the alloys furnished us today are divided into two classes. There are but comparatively few made now that do not fall into one of these classes. It is far from the wish of Doctor Black that this is true; in fact, there are few men making the better class who are making them as he would have them.

The first class is the hard alloys composed of from 65 to 68 per cent. of silver, 26 to 28 per cent. of tin, 3 to $4\frac{1}{2}$ per cent. of copper and 1 to $2\frac{1}{2}$ per cent. of zinc. All of the best hard alloys fall within these ranges, and are not made from any given formula, a fact, which, if thoroughly understood by the profession, would retard the progress and in time obviate the use of alloys made from some "pet formula" by some silver-smith or other person equally as limited in his knowledge of the subject.

From this class rapid, medium and slow-setting alloys are made, though the slow ones are much faster than the plastic alloys. These alloys are sufficiently plastic when properly annealed. The small amount of movement accompanying their amalgamation and setting is all expansion. They give up their excess of mercury comparatively easy. Their color is good. They are the only ones that are stiff enough to remain where they are packed and not change their position with subsequent movements necessary to complete the filling. Their flow is

comparatively little, their resistance to crushing stress is great.

Close observation accompanied by common honesty should have been sufficient equipment to enable the profession to eliminate from the market entirely everything but the best of this class of alloys long before this. Instead of mastering the one, and, apparently the only one, objection, viz., the hard-working property, many of the profession cater to their personal likings



Fig. 1.

Fig. 1 shows an amalgam micrometer which may be used in connection with the Wedelstadt test-tubes or test-tubes open at both top and bottom. It consists of a micrometer-screw which runs through a double-sectional nut, a disk containing the graduations which are read at the vertical bar, and two levers which swing in front of a mirror and indicate when a contact has been made with the filling by means of the needle which runs through the micrometer-screw. Bearings for levers are jeweled, and nut for screw is adjustable. Made by Miller, Eberback Co., Ann Arbor, Mich.

and, regardless of the magnitude of the error, demand the soft, plastic alloys which we will refer to briefly for comparison.

The composition of these alloys is based upon the short shrinkage and expansion range of fifty parts silver and fifty parts tin. The silver in these alloys ranges from 43 to 48 per cent., the tin from 48 to 58 per cent. and the zinc from 1 to 2

per cent. Most of these alloys are possessed of the dual movement, viz., both shrinkage and expansion. It must not be understood that this shrinkage and expansion are both going on at the same time. The shrinkage occurs first and usually within twenty-four hours, while the expansion does not begin till the second or third day. Even though the shrinkage which occurs during the first twenty-four hours is all made up by a subsequent expansion, the borders are never where they were before these movements took place.

These alloys retain great excesses of mercury because of their stickiness, which excess, at body temperature, results in a prolonged crystallization lasting for months and years. Their flow is from five to ten times that of the hard alloys, which enables the prolonged crystallization to produce the protruding borders now so often seen, and in the four-walled cavities such as are found on the buccal surfaces of the teeth, the typically spheroided fillings which will be referred to later. Their resistance to crushing stress is very low. They cannot be packed to make a good filling. Any effort to condense one part results in a movement in the other because of their softness. They are all very slow-setting alloys. Rapid and medium-setting alloys cannot be made from this class. The quick-setting properties diminish quite rapidly as we leave the ranges given for the hard alloys and is almost lost before this class is reached, and, as a result we have a mass that requires much time to stiffen sufficiently to admit the manipulation necessary to complete the filling without its being distorted. I think the conscientious and conservative men in the profession will no longer insert this latter class of alloys when they understand that with the same effort on their part, with no greater expenditures of money and with the same ease to their patients they can save more teeth and have better looking fillings. The great trouble is and has been for years that the properties of amalgam alloys has not been clear to the minds of men generally. It has been necessary for them to accept the articles in our periodic literature, many of which are similar to the one I have just mentioned. Probably not five per cent. of the profession understand that silver is an expanding constituent, that because of its affinity for mercury and crystalline form it controls the setting, that it improves the color, increases the edge strength, lessens the flow and because of its great tendency toward crystalliza-

tion and property of uniting with mercury slowly at ordinary temperatures it causes the alloy to work hard. The same is true with tin, which unites with mercury in all proportions and at all temperatures forming a weak crystalline compound if crystalline at all, that it produces the shrinkage, retards the setting, reduces the edge strength, increases the flow and is used simply because it imparts plasticity through a weak or non-crystalline form.

Copper unites with mercury with difficulty, tarnishes readily with moist air and sulphuretted hydrogen, but it diminishes shrinkage, hastens setting, increases the edge strength, lessens the flow.

Zinc unites with mercury in atomic proportions, tarnishes slowly, controls shrinkage markedly, hastens the setting, improves the color and edge strength and lessens the flow. I think that if the profession understood that these properties of each constituent stand out markedly in their alloys, as is usually the case with solutions or mechanical mixtures, they would no longer resort to alloys with less than 65 per cent. of silver in them. It is this lack of general understanding caused by the secrecy on the part of those in possession of the knowledge of the properties of alloys, that keeps a large percentage of the profession demanding these soft plastic alloys which the manufacturers know very well do not compare with their hard alloys composed of higher percentages of silver. But, what can they do when they are simply supplying the demands of an uneducated public?

Many of the hard alloys as furnished us now may be found in three classes, viz.: the rapid, medium and slow-setting. The difference in these three classes is in the annealing. There is little or no difference in composition. Regardless of the claims of some of the manufacturers that all of their alloys are carefully annealed and the movement accompanying their amalgamation and setting does not exceed 1-10,000 of an inch expansion, I will show you that this is true only in the earlier stages of crystallization or with their slow-setting alloys. If these alloys are subjected to a test of six months or longer at body temperature, it will be seen that there is a marked difference between a rapid, medium and slow-setting alloy in the amount of expansion that takes place. It will also be noticed that at the time of amalgamation there is a marked difference

in the amount of mercury required to make a plastic mass of each. For this testing I have two thermostats running all the time, one set at room temperature, one at body temperature, and no test is regarded as final that has not been in both of these from fifty days to six months, and often at the end of this time changes are found to be going on.

For illustration, I will give you the final results of some of the tests upon one of the hard alloys that was kept seventy-five days in the thermostat at 43 degrees. The alloy cut as a lathe with an automatic micrometer adjusting feed so that I probably had as uniform a cut as could be obtained. The test-tubes were 5-16 of an inch in diameter and 5-16 of an inch high. The alloy was made in an electric furnace which is supplied with modern conveniences for preventing oxidation. The stirring and casting were done under very favorable circumstances and in accordance with methods advocated by expert metallurgists. There was undoubtedly little or no chance for error in the preparation of this ingot. The mixing and packing were done as I have described in another part of this paper, except that the mercury was added from a small jug which had been previously weighed.

Formula	Test No.	Time of annealing at 43 degrees C	Per cent Mercury	Points of expansion	Manner of setting
Ag—67.75	1	none	60.00%	23 points	Extremely rapid
Sn—27.50	2	1 day	55.50%	7½ points	Slower than No. 1, but quite rapid
Cu— 3.40	3	2 days	53.41%	4 points	Slower
Zn— 1.35	4	3 days	53.00%	2 points	Slower
	5	6 days	52.89%	1¾ points	Slower
	6	10 days	51.76%	1 point	Quite slow, but faster than the plastic alloys

First, let us notice that the movement accompanying the amalgamation and setting of this alloy, as is always true with the best of these alloys, was all expansion. Shrinkage is not a phenomenon accompanying the use of the best of this class of alloys, if they are properly manipulated. The sloppiest manipulator among us probably could not make one of them shrink, though it is possible that a slight shrinkage might be produced.

Second, let us notice that this expansion is practically all removed by the annealing, thus producing a product whose

movement is reduced to a minimum, not exceeding in the earlier stages of crystallization at ordinary temperature, 1-10,000 to 1-20,000 of an inch on a block of amalgam 5-16 of an inch in diameter and 5-16 of an inch in depth.

Third, let us notice that the rapid-setting properties are lost as the annealing is continued. I do not mean to infer that the quick-setting properties are all lost by the annealing, but that the extremely rapid-setting tendency is what is removed.

When these alloys are fresh cut it is almost impossible to make a plastic mass of them, though as much as 60 per cent. of mercury is used, they are still dry and granular and stiffen the very moment they lay still. With each day at room temperature and each hour at higher temperature, the quick-setting properties are lost until we have an alloy that sets quite slowly, though not as slow as the plastic alloys. Let us bear in mind, then, that the difference in the annealing is what produces the difference in the setting properties and that this annealing occurs at room temperature as well as at higher ones, only it takes a longer time. If, then, you are buying rapid-setting alloys in large quantities, you should not be surprised to find the last bottle setting much slower than the first, unless you have kept it in a very cool place. Much stress is laid upon the proper amount of annealing by some of the manufacturers. By this they claim to get an alloy that always gives an expansion not exceeding 1-10,000 of an inch on their rapid, medium and slow-setting alloys, while, if you will refer to the chart, you would find that test No. 2 would have compared quite favorably to some of our hard alloys marked "Rather Rapid-Setting," etc., and No. 5 just as favorably to one of our hard alloys marked "Slower Setting," though there is quite a difference between the two in the amount of expansion that took place and the percentage of mercury required to make a plastic mass. Again, let me remind you that these good, hard alloys do not shrink. It is a question of how much expansion takes place and how quickly they set.

Let me show you the results of time on some other alloys. Some time ago I asked what alloys a certain dealer handled and which ones he sold the most of. He responded with the usual reply that he sold one hard alloy and one plastic alloy, but kept in stock a large number of others. The ones he kept in stock had been in his possession a long time. The ones he sold the most

of were fresh because his supply was being constantly exhausted and as often replenished. An analysis of the alloys in his stock seemed to cover the field fairly well, as will be seen by the following table:

Alloy No.	Ag.	Sn.	Cu.	Zn.	Gold.	Expansion.	Average Shrinkage.
1	43.21	56.68	...	.09	...	...	10 points
2	45.64	53.14	.15	1.10	...	...	2¾ points
3	46.85	52.17	...	.98	...	...	8¼ points
4	48.61	50.04	...	1.55	...	2	.....
5	43.44	50.51	3.41	2.64	...	...	½ point
6	54.08	39.92	2.56	...	...	0	0
7	58.07	34.93	3.46	2.54	...	...	½ point
8	66.19	27.23	4.12	2.46	...	1½	.....

Let us notice that they all shrank from one-half to ten points on the micrometer except Nos. 4, 6 and 8. Nos. 4 and 8 were the ones he handled the most of. They were both fresh. No. 6 we happened to catch at zero point. These alloys were now placed in a thermostat which was set at room temperature (38 degrees) and left there six months, when these tests were repeated. At this time No. 2 and 6 had gradually crept into the shrinkage column, leaving No. 8 the only one to give the slight expansion necessary to insure against shrinkage. Nos. 4, 5 and 6 were not capable of great shrinkages and it is barely possible that these slight shrinkages were due to the manipulation, but it will be seen that the percentage of silver in all three of them was below 55 per cent., a fact, which alone is sufficient to condemn them. This analysis of this dealer's stock shows that these low grade alloys are still made and that many of the profession are using them.

The amalgamation of this class of alloys is best accomplished with weighted proportions of mercury and alloy. It may appear a feeble and prove a fruitless effort for me to advocate what Doctor Black has advocated ten years, but it is true nevertheless, that this is the only way to get uniform results. These proportions will vary with the alloy used and the age of some of the alloys, as has just been shown. The amount of mercury for these alloys is generally greater than the alloy, ranging in most cases from four parts alloy and five of mercury, to five parts of alloy and seven of mercury. After weighing the alloy and mercury they should be placed in a small mortar and

stirred rapidly but lightly with a pestle until the two are coherent enough to be turned into the hand conveniently. Much force should not be used in the mortar, lest the identity of the cut be entirely destroyed. This should be a means of incorporating the two without loss of material or waste of time and *not* a means of comminution. I firmly believe that the alloy may be much more uniformly dissolved in the mercury by a continued, rapid kneading in the hand, than by grinding in a mortar.

After some careful study of this subject, I found that unless the grinding process, as done with the mortar and pestle, was carried on for a long time and much care used in keeping the borders well shaken into the middle of the mortar, a section would show patches of what appeared to be a complete solution of the alloy in the mercury, among which were granules of the alloy that had not been half dissolved. After incorporating the alloy and the mercury in the mortar, they should be turned into the hand and kneaded rapidly until the granulations have quite uniformly disappeared. If, during the kneading, the mass becomes real soft, before the granulations disappear, the surplus mercury should be removed by gently squeezing the mass between the thumb and finger. Do not use much force because you will press too much mercury from the center into the border of the mass. Do not take the time to place the mass into a chamois skin or muslin unless you have a mass too large to be uniformly compressed between the thumb and finger, because the alloy will stiffen so much that subsequent kneading will not produce the required plasticity.

After removing the excess of mercury, the mass should again be returned to the hand and kneaded vigorously. If the mass again becomes too soft, more mercury should be removed as before. It is usually necessary to return the mass to the hand three or four times, each time removing a *little* mercury, to get the "creaking noise" which indicates the amount of stiffness necessary to enable it to be properly packed. It must be understood that "weighed proportions" of mercury and alloy does not mean the amount of mercury which should be left in the filling, but the amount which should be used to amalgamate the alloy. It is the amount of mercury which after being incorporated with the alloy in the mortar and thoroughly kneaded in the hand will allow us by good firm pressure between the thumb and finger to remove a very small globule of mercury, and after

more vigorous kneading in the hand will allow little or no mercury to be removed with the same pressure as was used the first time.

Those who are not using weighed proportions of mercury and alloy should use *great* care not to add mercury from a jug till large globules of mercury can be removed with little effort. As soon as enough mercury has been added to make the mass coherent enough to hold together, the kneading should be begun and mercury added very slowly till a point is reached, where, after vigorous kneading, a very small globule of mercury may be removed. This is the way the proper proportions are determined and should be observed closely by every one for the reasons which will be given later under the head of "constituents removed with excess of mercury." The packing should be begun at once, using as much force as is consistent with the operation and as large, flat-ended instruments as will conveniently enter the orifice of the cavity. If the cavity contains angles or irregularities, as large an instrument should be used as will compress the amalgam into such an angle.

Doctor Black says the whole principle of making perfect work is contained in the one word, compression. This class of alloys all have a tendency to stiffen if they lay still for a few seconds. It is this property that enables us to pack them so much better than the plastic alloys. After the amalgam has once been carried to place, it should not be moved again by any means whatever. Any subsequent movement of the mass will produce a weaker filling. The amalgam must lay still after it has been packed. The use of the matrix is imperative. It is impossible to get any degree of compression in a cavity that does not contain four natural or artificial walls. There is no one thing that will so disgust you as to study carefully the borders of your amalgam fillings with even a low power lens.

Expert manipulation, attended by the most discriminating care, will not produce a border on an amalgam filling that is equally as good as a gold filling that has been made with anything like as favorable circumstances while an amalgam filling which has been made without a matrix and under other less favorable circumstances is not deserving of comparison. With amalgam as with other plastic fillings, the cavity should be filled more than full and left so until it has stiffened sufficiently to admit the necessary carving without movement of the mass.

The finishing should be the same as with a gold filling and should be done every three or four months because of the expansion that is constantly going on with our present alloys, unless care has been used in selection of the alloy and the per cent. of mercury used to amalgamate it. An understanding of the merits and manipulation of the hard alloys should be general.

The use of the so-called gold and platinum alloys, the plastic alloys, Doctor So-and-So's special alloy, the use of the round burnisher for packing, filling proximal cavities without a matrix, the washing of alloys, the discoloration of tooth structure, and the manufacture of one's own alloy should be matters of history and no longer material for discussion at dental meetings.

If I could preclude the sale of the plastic alloys, prevent dentists from making their own alloys and nurture the thousands who have labored for years under an indifference and inattentiveness to this subject of manipulation, I would feel that I had exploited the most fertile field in dentistry and reaped a harvest that had been ripe a century. There is a wide-spread belief that the composition of a given alloy may be markedly changed by the excess of mercury necessary to amalgamate it. Such, however, is not the case with the best of these alloys when they are *properly* manipulated. There is a change produced but is not a perceptible one in ordinary work.

I recently made a study of this subject to determine whether or not the constituents carried out with the excess of mercury were in the same proportion as they were in the alloy. The tests and the results on one or two of these alloys will be sufficient to illustrate what takes place. I purchased in open market one of the hard alloys that was very uniformly cut and had given good results when tested in the laboratory. It analyzed silver 65.59 per cent., tin 27.67 per cent., copper 4.39 per cent., and zinc 2.37 per cent. I saved the expressed mercury from fifteen fillings that I had inserted while using this alloy in my practice. These fillings were manipulated as I have previously described, using 47.25 per cent. of alloy and 52.75 per cent. of mercury. The excess of mercury was removed by gentle pressure between the thumb and finger. An analysis of this showed the silver, copper and zinc to be within .01 per cent. what they found in the alloy and the tin to be in excess of what it was in the alloy .32 per cent. From this same alloy I made seven fill-

ings in the laboratory, using 45 per cent. of alloy and 55 per cent. of mercury. Each one was stirred rapidly in a mortar for one minute and kneaded vigorously in my hand for four minutes.

You will notice that this was too much mercury and kneaded entirely too long with this excess of mercury that made it sloppy, but I was making a special effort to dissolve greater proportions of the alloy this time if possible. The excess of mercury this time was removed through a strong, fine piece of muslin, using about all the force I could exert. An analysis of this showed the silver, copper and zinc to be within .2 per cent. of what they were in the alloy and the tin to be in *excess* of what it was in the alloy 1.01 per cent.

Still another test was made upon this same alloy with the conditions exactly the same except that the excess of mercury was removed by heavy pressure between the thumb and finger. This time I removed larger percentages of all the constituents. The tin this time was in excess 3 per cent. and the silver lacking about the same amount while the copper and zinc remained almost the same.

Another alloy that analyzed silver 64.39 per cent., tin 27.54 per cent., copper 4.47 per cent. and 4.60 per cent. of zinc was treated exactly the same as the one just described and gave practically the same results, viz.: the silver was lacking 2.67 per cent., the tin in excess 2 per cent., the zinc was in excess .34 per cent. and the copper about the same.

With these as with my other tests the proportion of tin that was removed with the excess of mercury has always been greater than it was in the alloy—the proportion of silver has always been less—the copper has always nearly been equalled to, but never exceeded, and the zinc has always been equalled to and often exceeded.

These analyses indicate to a certain extent the selective power of mercury for each constituent and show that with large percentages of mercury and excessive kneading with this per cent. of mercury we may produce marked changes in our alloy. We would naturally think that since tin is regarded as the shrinking constituent, that the removal of a greater or less amount of it would increase the expansion of the alloy. Such, however, is not the case. Shrinkage accompanies the removal of this tin every time. I have not found a single exception. This is the reason why we should work closer when we are amalga-

mating our alloys and not have large amounts of mercury to remove.

The so-called spheroidal tendency of amalgam has always occupied a sufficiently conspicuous place among the phenomena accompanying the use of amalgam, to invite more or less lengthy discussions in our text-books and journals and attract the attention of a great many even today. The prevailing opinion seems to have been, and is now, that the spheroidal shape of globules of mercury were due to some property peculiar only to mercury and this property of the mercury was directly responsible for the spheroided amalgams. These men have lost sight of the fact that other metals too are spherical when in a liquid state and that liquid state of mercury was simply a matter of temperature.

Of the articles now on record, I will refer to but two that seem to have any bearing upon the subject as it presents itself to me after a long and tedious study. In the *Cosmos*, Vol. 37, page 569, Doctor Black says that "spheroided fillings may be due to an expansion of the mass and being confined by the cavity walls, the material will rise up in the center in the same manner as ice forming in a strong drinking glass or other vessel will assume a spherical surface. This is because the ice flows under stress the same as amalgam flows under stress."

The second article may be found on pages 9 and 10 of a complimentary pamphlet sent out by the Garhart Dental Manufacturing Company, which is a paper read by K. N. Garhart before the Odontological Society of Louisville, Kentucky. He says, "Spheroiding or changing of form is nothing more than excessive shrinkage. That this condition of affairs is directly attributed to faulty manipulation of the alloy and that Doctor Black could have given some valuable information on this subject had he submitted some spheroided fillings to a chemical analysis, because he could have proven the presence of surplus mercury.

Notice, he says, that they contain an excess of mercury, but that they are due to shrinkage. Hodgen says that of all the alloys tested by Doctor Black, he found but two in the number which spheroided. From these statements it would appear that they were very rare and that there was still a variety of opinions as to its cause, while I have found scores of them by some little observation in the mouths of patients whose dentists

was using the plastic alloys and in every case have found them due to expansion. Fig. No. 2 shows the surface of a filling made from one of the plastic alloys and kept in the thermostat at body temperature eight months. It may be seen that the surface is becoming spheroided. Fig. No. 3 shows a companion filling exactly like No. 2 except that the walls of the test tubes are highly polished, this being accomplished by making the test-tube with removable bottom as shown in Fig. No. 4. It may be seen that No. 3 instead of spheroiding has raised up as much at the borders as it has at the center of the filling. A number of tests made under the same conditions have shown that spheroiding was due to a roughness of the walls of the cavity, as shown in Fig. No. 2, when removed would cause the spheroided surface to be submitted by simple expansion as shown in Fig. No. 3. The cause and extent to which these fillings expand appears to be dependent upon several factors, some of which will retard



Fig. 2.

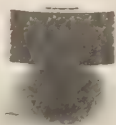


Fig. 3.



Fig. 4.

the progress, and others prevent the phenomenon entirely when they have been eliminated.

That these expansions are a continuation of the setting process I think there is little doubt. In every case where an excessive expansion or spheroided surface have been produced the amount of mercury used and the temperature at which the test was kept have determined largely the amount of expansion obtained. These expansions are not obtained from all grades of alloys. Only those that retain great excesses of mercury and have a large percentage of the non-crystalline element produce them. This class I have already designated as the plastic alloys, composed of silver, tin and zinc in the proportions previously given. From what evidence I have now I think I am safe in stating that these expansions may be attributed to the property of these alloys to flow easily under the strain of crystallization, due to loosely or uncombined mercury in the tin, acting, by the aid of body temperature upon a partially crystallized alloy.

A SHELL OF PORCELAIN REPRODUCING THE ENTIRE
NATURAL ENAMEL AND THOROUGHLY PRO-
TECTING THE DENTINE OF A LIVING
TOOTH WHEN MADE NECESSARY
BY EROSION OR OTHER
CAUSE.*

BY EDWARD B. SPALDING, D. D. S., DETROIT, MICH.

In February, 1903, Dr. C. H. Land showed me what seemed to be at first glance, an extracted central incisor, with the enamel detached from the dentine in one complete shell, but which, upon second inspection, proved to be a shell of porcelain reproducing the natural enamel. It truly was the prettiest thing I had ever seen in dental porcelain, and Doctor Land



Fig. 1.



Fig. 2.

refers to the process in his article in the *Dental Cosmos*, Vol. XLV., 6 and 8, June and August, 1903. At first, I had no faith in the durability of such a thin shell of porcelain for actual use in the mouth, but the beauty of the thing led me to experiment on extracted teeth, and, after cementing several on the models and finding what severe tests they would withstand, I decided to put them to practical use in the mouth, and since May, 1903, have used no other method for crowning incisors and cuspids where there remained sufficient dentine; I have also used the method on many molars and bicuspids.

* Presented at the Ohio State Dental Society, December, 1904.

The following process in detail for preparing the tooth, forming matrix, adapting veneer and fusing, I have adopted after considerable experiment and practice, as being the most simple, direct and accurate means of producing a uniformly successful result.

Let us first look at Figs. 1 and 2, to get a better idea of what it is we wish to accomplish. Fig. 1 shows a tooth properly prepared, enamel removed to the shoulder at the gum line and dentine more or less cone shaped. Its shell of porcelain is seen above, and when in place on the tooth fits as nicely as shown in Fig. 2, joint everywhere flush and almost, if not quite, as tight as an inlay joint.

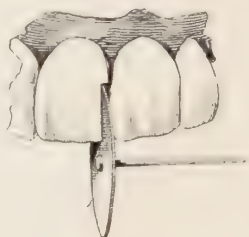


Fig. 3.

When a tooth in the mouth calls for treatment in this manner it is usually because of deficient enamel; consequently there is not the large amount of enamel to remove which would be found on a normal or perfect tooth.

We will imagine an upper central incisor, the enamel of which is lacking on the labial surface from erosion, and we desire to remove the remainder of the enamel, preparatory to making a porcelain jacket.

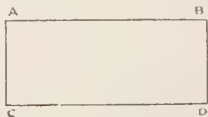


Fig. 4.

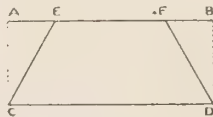


Fig. 5.

We first take a $\frac{7}{8}$ -inch, thin, separating carborundum disk, mounted in the engine hand-piece and, being revolved at a high speed and kept wet with a stream of warm water from the syringe in the hands of an assistant, the mesio-approximal surface is removed in the manner indicated in Fig. 3. Commence at the cutting edge and move the disk toward the cer-

vix. Where the disk is stopped at the gum, a shoulder is left such as is desired around the entire tooth when the preparation is completed, and this shoulder should be at, or slightly below, the gum line.

The disto-approximal surface is dressed in like manner and the remaining enamel removed from the labial and lingual surfaces by means of a $\frac{1}{2}$ -inch knife-edge carborundum stone (not disk). This removes the enamel from four sides and leaves four corners to be rounded off by means of the disk again, approached at different angles.



Fig. 6.

Up to this point we have paid little attention to the shoulder except as left by the disk on the approximal surfaces. By the use of the smallest inverted cone carborundum stones on the market (3-16 inch, No. 184), mounted with shellac on an old bur, the shoulder on the labial surface is partially dressed, and a similar stone mounted on a right angle hand-piece bur, accomplishes the same result on the lingual surface. The shoulder is finished and receives its definite line by means of sharp wheel burs. Let the use of new, sharp knife-edge stones and new, sharp, wheel burs be emphasized, for a dull bur and a dull stone both cause pain. The point, or cutting edge of the



Fig. 7.

tooth, is shortened and the whole treated with a few quick touches with a sand-paper disk to smooth and complete the preparation of the tooth to receive the matrix. For convenience, we will call the prepared portion of the tooth the conical portion.

In preparing a tooth in this manner we have not encroached upon the pulp at all, and what would seem to be an excruciatingly painful operation is really little more annoying than the preparation of cavities, as we do almost every day.

MAKING THE MATRIX.

The first step in forming the matrix is to obtain the circumference of the tooth over the shoulder and under the gum. This is done by means of a dentimeter, or by a thin strip of copper or other metal pinched about the tooth. This measurement is more conveniently taken before the tooth is prepared and the shoulder formed.

Now cut a piece of inlay platinum (1-1000 inch) 1-16 inch longer than the measurement taken and $\frac{3}{8}$ inch broader than the length of the conical portion of the tooth from the shoulder to the point. This rectangular piece of platinum, as shown in Fig. 4, is now changed by cutting off the angles "A" and "B" to the form C, E, F, D, Fig. 5. The edges, C, E, and D, F, are lapped 1-32 part of an inch, the cone shaped instrument, Fig. 6, assisting to bring the edges of the platinum in absolute contact, which is then firmly held in the pliers (Fig. 7) while the end of the seam is soldered with a very small particle of pure gold. As soon as part of the joint is soldered, loose the



Fig. 8.



Fig. 9.



Fig. 10.

pliers and grasp the platinum on the side opposite to the seam, and if the edges are in absolute contact, there is sufficient gold present to complete the union of the edges when the heat is again applied. The very smallest particle of gold should be used in soldering.

Fig. 8 shows the platinum cone, which is 1-32 inch larger at its base than the circumference of the tooth, and when placed over the tooth will slip over the shoulder and under the gum.

The advantage of the cone is now shown in Fig. 9, for the farther over the tooth it is carried, the tighter it becomes at the points G and H, where the fit of the matrix must be exact.

Now, with a piece of No. 27-gauge copper wire in the dentimeter, a loop is placed about the cone (Fig. 10) and is

alternately tightened by twisting, and carried toward the shoulder with a burnishing instrument until the wire has been worked carefully into the angle between the shoulder and the conical portion, carrying the platinum with it and shrinking it to the tooth. During this stage of the process, the forefinger of the left hand has been held tightly on the point of the cone to keep it firmly in place. The wire is now tightened as much as possible without breaking it, and serves to hold the platinum firmly while the next stage of the burnishing is done.

The burnishing instrument (Fig. 11) is made from a bone handle of a mouth-mirror, and its shape is seen in the illustration. With the thumb and forefinger the platinum is pinched to the conical portion, aided by the burnisher and the narrow-nosed pliers, or tweezers, so that the surplus is carried to the approximal sides (Fig. 12, I and J). Now trim the surplus, leaving an extension of about 1-32 to 1-16 of an inch, which

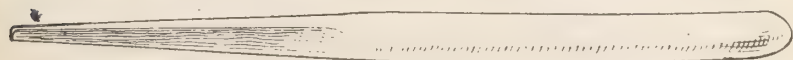


Fig. 11.

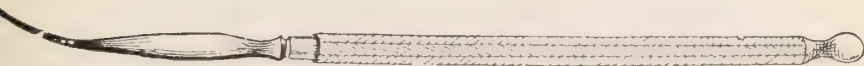


Fig. 11A.

is lapped over and burnished down smoothly on the sides, but not on the point, as in Fig. 13. The wire is now removed and the platinum thoroughly burnished over the shoulder and into the angle, using besides the bone burnisher, the small "V"-shaped steel burnisher (Fig. 11A). The unburnished point of the matrix (K, Fig. 13), is now grasped in the pliers and the matrix removed and replaced once or twice to make certain that it does not bind at or below the shoulder. This done, the point is laped and burnished, as were the sides, and the matrix is completed (Fig. 14).

PREPARATION OF THE VENEER.

The next step is the preparation of the veneer, which forms the labial portion of the jacket.

The proper shade and shape is selected in a vulcanite tooth on account of its shoulder (L, Fig. 15), which assists in adjusting to the matrix. The back and pins are ground away

until a very thin veneer is left, as in Fig. 16. This grinding is not so laborious a task as might be supposed if small knife-edge carborundum stones are used together with the little inverted cone stones (No. 184) previously mentioned. The stones should be kept thoroughly wet during the grinding, and the veneer tried on the matrix, which is in place on the tooth, from time to time, in order to bring it to proper alignment with the other teeth. When it assumes the desired position, the cervical end of the veneer is shortened, so that it does not touch the shoulder, as at M, Fig. 17. It is now thoroughly washed, to remove all particles of carborundum, and adjusted to position, where it is held with finger of left hand while a small ball of wax (gutta-percha base-plate wax preferred) is warmed and pressed against the lingual portion of matrix and veneer, imbedding them so that they are held in their proper relation (Fig. 18). Usually the veneer and matrix are



Fig. 12.



Fig. 13.



Fig. 14.

held firmly enough by the wax so that they are removed from the tooth together, but if they should separate, the wax and veneer remain together and the matrix is readily teased off the tooth and placed in its position between the wax and veneer.

Having a pair of tweezers, with sliding band for locking them, place a small piece of vulcanite rubber on one beak; insert the bare beak within the matrix and let the one protected with the rubber rest on the outside of veneer; close and lock. Remove the wax, and the matrix and veneer will be found to be held firmly in their relative position, as is shown in Fig. 19.

The gutta-percha base-plate wax (N. Fig 18) is not excessively sticky, and is black, and if any particles remain they are readily seen and removed before applying the porcelain body. O, Fig. 19, shows how the rubber is utilized to prevent beak of pliers from slipping on surface of veneer.

APPLYING THE PORCELAIN.

The body is first applied on one side, only at the point indicated by the arrow P, in Fig. 19, and being mixed rather thin at first, the tweezers are thoroughly jarred by drawing across them a rough handled instrument until the moisture is seen to appear on the opposite side of the matrix, corresponding to where first applied. This shows that all the air between the matrix and veneer has been driven out by the moist body. Now additional body is applied in a much drier state, until the matrix is covered only so far as indicated by the dotted line in Fig. 19. In no case let the body reach the shoulder before the first fusing. The moisture being thoroughly jarred out, the work is ready for the first fusing. Remove the pliers, when the matrix and veneer will be found to be held firmly by the body so that the whole will stand upright, resting on the base of the matrix, and is carried on the slab into the furnace in this manner. At the time of first fusing the moisture should be



Fig. 15.



Fig. 16.



Fig. 17.



Fig. 18.

dried out slowly, for if heated too rapidly the moisture between the matrix and veneer will form steam and throws the veneer off. Let the work be slowly moved into the furnace, so that the veneer faces and receives the heat first.

After fusing, place the united veneer and matrix on the tooth and the portion of the matrix over the shoulder of the tooth is again burnished to correct any possible changes which may have taken place during previous handling. Removed, and again washed, the matrix is completely covered with body flush to the shoulder line and built up and carved on the lingual and approximal surfaces, as the case may require. There may be as many fusings as the operator deems necessary to produce the desired result. How nearly the finished article resembles the shape and shade of a natural tooth must depend upon the operator's knowledge of tooth anatomy, his artistic eye and his ability to manipulate porcelain.

Fig. 20 shows shell complete before matrix is removed.

The matrix is removed much as it is from an inlay, by pulling away from the sides with a pair of tweezers, care being used not to let them slip and strike the edge of the shell to chip it. If the matrix clings very closely up in the point, it is readily detached with a small bur in the engine. (See Figs. 1 and 2 for shell complete, with matrix removed.)

Before setting in place with cement, the inside of shell is etched with hydrofluoric acid, to provide a surface for the attachment of the cement. The dentine of the tooth should be varnished with a good cavity lining before cementation. The cement should not be mixed too thin, neither should it be so thick that much force is necessary to carry shell to place, as it might be fractured in this way.

A question which will readily suggest itself is, does not the grinding out of the porcelain tooth to form so thin a veneer change its color, and also, will not the cement change its shade

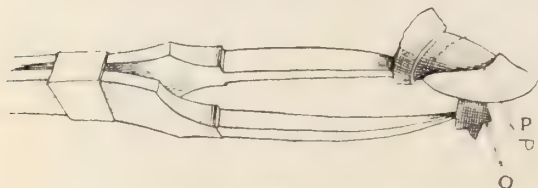


Fig. 19.



Fig. 20.

when set in place? That is answered by saying that the portion of the porcelain tooth ground away is usually yellow, of a varying shade and the characteristic blue, brown or other shade is retained in the veneer, and when a cement is chosen, a yellow is selected, which will replace the underlying yellow, ground away. It is possible to influence the shade of the shell somewhat in the choice of a cement.

By the completed and cemented shell we have a live and healthy tooth, thoroughly protected from injurious external influences. Experience teaches us that a tooth is never so comfortable with a metal filling or metal crown as it is with a porcelain inlay or porcelain shell. It is more artistic and natural than any other style of crown. No other crown has so flush and tight a joint, and the irritation of the gum, characteristic of band crowns, is entirely absent.

Lastly, it has strength to withstand severe use in the

mouth. As a shell uncemented it is frail, but when thoroughly supported by cement it has the endurance almost of the natural enamel.

The porcelain body used in constructing these shells is what is termed block body, or porcelain tooth body. It is prepared by taking the bicuspids and molars of a set of diastoric (pinless) teeth and pulverizing them in a wedgewood mortar. One tooth at a time is taken in the mortar and when it is fractured into a number of small pieces, they are emptied upon a sheet of white paper and an assortment made, separating the pieces composed of the clear blue, or characteristic color of the cusps of the tooth from the remaining yellow, which forms the bulk of the tooth. The blue is powdered separately from the yellow and the amount of each obtained from



Fig. 21.

a set of four molars and four bicuspids gives us sufficient body of these two shades to last some time. Four shades of body, two blues or grays, and two yellows are usually all the variety needed in this work when a veneer is used. This very high-fusing body has several advantages for this work over the so-called high-fusing bodies found on the market.

First: The body is of exactly the same material as the veneer, so that when completed the shell is of one grade of porcelain. The advantage of this is, that the union of veneer and body is more complete, although, the body having been once fused and reground, fuses at a little lower temperature than it did the first time.

Second: There is less shrinkage.

Third: There is not the liability to cracking or checking upon cooling that there is when a lower grade of body is used in connection with the veneer.

Fourth: No matter how many times the work may be fused, there is no danger of its becoming porous if it is kept absolutely clean, but a lower fusing body will frequently become porous when fused a number of times, due to the burning out of the flux which it contains.

What is known as *low-fusing* (gold matrix) porcelain has no place whatever in connection with this work.

"A" (Fig. 21) is a plaster model of a typical case of malformed enamel due to impaired nutrition from birth, to about four years of age.

Model "A" was made in June, 1902, after which the irregularity of the teeth was corrected, and in July, 1903, the six anterior teeth were covered with porcelain by the process just described. "B" is a model of the case after it was completed. Age of patient at completion, nineteen years.

RETENTION OF ARTIFICIAL DENTURES,

BY GEORGE H. WILSON, D. D. S., CLEVELAND, OHIO.

Retention by atmospheric pressure: Many speakers and writers do not seem to comprehend the difference between adhesion by contact and adhesion by atmospheric pressure. The first implies that there is absolute contact formed by a fluid, while the second contemplates a space and a partial vacuum.

In adhesion by contact there is absolutely no vacant space, because the space that exists between the base plate and the mucous membrane is filled with a fluid, and by the physical law of Pascal, we know that the pressure exerted by the atmosphere upon the film of moisture at the periphery of the denture is transmitted undiminished in every direction; hence the hydrostatic pressure is the same under the plate as the atmospheric pressure is upon the outside. Another proof of the adhesion by contact is that two plates held together by a film of fluid may be suspended in the receiver of an air-pump and the air exhausted, when it will be found that there is the same adhesion. It must be conceded that a perfect contact denture is retained by adhesion by contact and by that force only; but that an imperfect contact denture, intentional or otherwise, may be held by atmospheric pressure.

To obtain the best results in adhesion by contact, two essential conditions are necessary; first, that the base plate in form shall be an absolute negative of the surface of the mucous membrane, and second, that the oral fluid shall be of a proper consistency to form an exceedingly thin film, because the force will be weakened just in the ratio to the thickness of the film of liquid. A thick, ropy fluid is detrimental.

Atmospheric pressure may be made a factor in retaining a denture and undoubtedly often is introduced as a means of retention unintentionally, as the result of imperfect workmanship. The amount of atmospheric pressure exerted upon a denture is according to the surface of the space in which the air is rarified. The thickness of the space makes no difference so long as a space exists in which there is more or less rarified air. Thus, in the endeavor to relieve the pressure of the denture upon the hard places by the addition of foil or wax, if the thickness should be greater than is necessary, a space will be formed, and when the air is partially exhausted, that portion of the plate is acted upon by atmospheric pressure; while the balance of the plate is acted upon by adhesion by contact. This condition can exist for a short time only, because the partial vacuum will create what is commonly called suction, and this will cause the secretions of the mouth to flow into the cavity until the hydrostatic pressure is equal under the whole denture. Should the space or chamber be too great to be filled with fluid, the reduction of pressure upon a portion of the mucous membrane will then stimulate the cells until there is sufficient proliferation of the mucous tissues to fill the space, when contact and equalized hydrostatic pressure is again secured. Thus it is evident that the conditions permitting atmospheric pressure are only temporary and that ultimately, adhesion by contact is the only force that retains the denture.

The question naturally arises: Whether the operator is, or is not, justified in utilizing atmospheric pressure for the retention of dentures? It has already been stated that the retention by contact is very variable and under unfavorable conditions may be almost nothing, so that a patient inexperienced in the use of artificial dentures could not retain the appliance at all. In these cases it becomes necessary to retain the denture by some other method until the patient has acquired the art. Atmospheric pressure will generally accomplish this very much desired object; therefore the operator is justified in using this force in

this class of cases because it is less objectionable than the remaining method (spiral springs) of attaching to the soft tissue.

Forming the vacuum chamber: Three layers of No. 60 tin-foil will usually be sufficient for this purpose. Should a deeper chamber be desired, block tin may be rolled, and annealed by heating for a few moments in boiling water. It is not desirable to have this tin plate more than thirty-thousandths or one-thirty-second part of an inch in thickness. This tin plate can easily be cut and pressed into the desired form, and attached to the cast by sandarac varnish, short portion of pins, short brads or tin-foil, according to the purpose for which the cast is to be used.

FORM AND LOCATION OF THE VACUUM CHAMBER.

Vacuum chambers are confined almost exclusively to upper dentures. We shall not consider them in the lower denture. The form should approximate the outline of the crest of alveolar ridge and the distal edge of the plate. About one-fourth of the area should be included in the chamber. The center of the chamber should be the center of the plate, so there will be equal leverage in every direction.

The central vacuum chamber is to be preferred when admissible, but in some very high peaked vaults, or when there is deeply fissured raphe, it is better to use bilateral chambers. These are usually oval in form and placed upon either side and one-sixteenth to an eighth of an inch away from the raphe.

OBJECTIONS TO VACUUM CHAMBERS.

They are only a temporary expedient. They cause a deformity of the vault of the mouth just in the ratio to the depth of the chamber. In some cases the chamber causes an intense drawing and burning sensation, but only in those cases in which they are entirely unnecessary. Last and by no means least of the objections, is the fact that the thickened tissue created by the deep chamber interferes materially with the retention of a denture by adhesion by contact, thus a permanent injury is done the unfortunate mortal who is condemned to wear an artificial denture.

The prosthetist should make it an invariable rule never to use a chamber more than one-thirty-second of an inch in depth, and that only where experience has demonstrated the necessity. The writer is confident that as the operator acquires the ability to make a perfectly adapted denture, there will be far less de-

mand for a vacuum chamber. Too much emphasis cannot be laid upon the necessity for a correct impression, a properly formed cast and such delicacy of manipulation as not to warp the denture in the process of construction.

Fig. 1-a represents a central vacuum chamber and 1-b illustrates bilateral vacuum chambers. The writer desires to apologize for this cast. When it is a high peaked vault and a fissured raphe, it is a partial and the denture constructed for this case was retained by clasps. As no suitable cast is at hand, it seems best to use this one and make the explanation. These chamber forms were made of block tin rolled to twenty-thousandths of an inch in thickness.

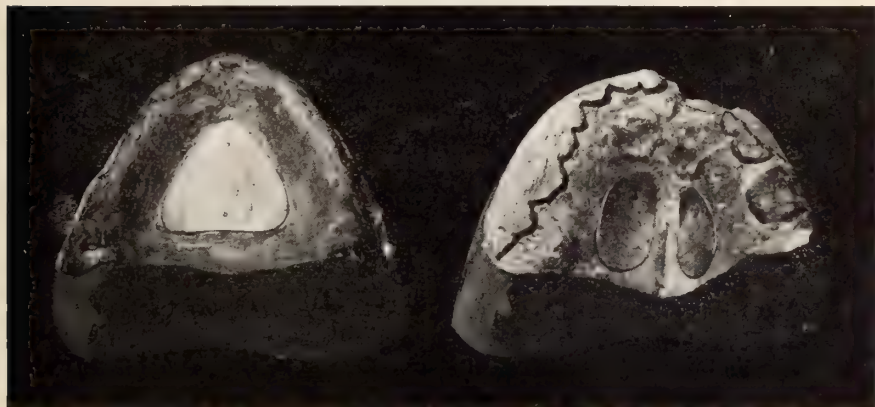


Fig. 1-a

Fig. 1-b.

Spiral springs: The principles of this method should be well understood and used only in those extreme cases where the two preceding methods have proven entirely inadequate.

The method may be required in edentulous jaws associated with cleft palate. Also patients of advanced years in whom excessive resorption of the alveolar process has taken place, and accompanied with either very tense mucous tissue or an excessive amount of soft tissue.

The objections are that there is a constant pressure to force the jaws apart, which may be very exhausting to a debilitated patient of advanced years. The appliance may irritate the buccal tissues, but usually it does not if the dentures are properly constructed. The mechanism is somewhat difficult to keep clean.

The appliance consists of two spiral springs attached at the buccal centers of leverage of both upper and lower dentures. Fig. 2, which is taken from the illustration of the beautiful work of Doctor Evans in the "American Text-Book of Prosthetic Dentistry," will sufficiently explain the method of application. In the same text-book Dr. William H. Trueman, under the heading, "Spiral Springs," so perfectly describes the modus oper-

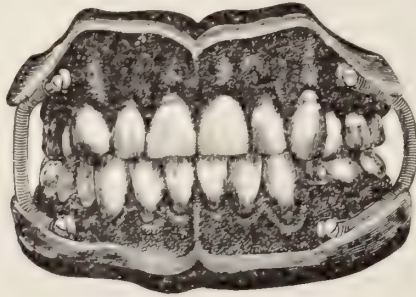


Fig. 2.

andi of their construction, that it seems superfluous to give it in this article.

Resume: The retention of artificial dentures by the soft tissues necessitates a perfect plaster impression, a properly constructed cast, uniform pressure and absolute contact. For a temporary expedient, atmospheric pressure may be used, and in rare cases it may be necessary to use spiral springs.

DETACHABLE TEETH FOR BRIDGE-WORK.*

BY C. L. FRAME, D. D. S., COLUMBUS, OHIO.

Probably no branch of practical dentistry has held the attention of dentists, or has been the subject of more discussion, with a record of such a great number of failures, as has bridge-work in the past ten or fifteen years. Consequently a field has been open for some one to invent or devise a method, system or new form of tooth whereby the probabilities of failures would be greatly reduced. To accomplish this, it was necessary to adopt some method in which the porcelains would not be subjected to the heat and repairs could be made without removing the bridge from the patient's mouth. For about a year I have been

*Read before the Columbus Dental Society, June, 1904.

using the Steele interchangeable tooth-designer to fulfill these requirements and I do not hesitate to say that it is just what we have been looking for, that it places crown and bridge-work in a position to keep pace with other departments of dentistry and that by using these teeth the percentage of failures is no greater than in other branches of dental work. Even though we should hear of an occasional breakage, the ease with which repairs can be made, justifies their use. However, I suppose there are those who denounce detachable teeth, pointing to the numerous failures they have had with various forms of them and in a time of disappointment and disgust, they have removed their cases, looked at them superficially, dropped them in the scrap-box and perhaps cursed the hour that they first attempted a detachable-tooth bridge, going back to the old method (which is a "bug-bear" to dentistry), or perhaps have done away with bridge-work altogether.



Fig. 1.

Again there are those who have had similar failures, have met with the same disappointments, but having been endowed with common sense and reason, they did not forget there is a relation between cause and effect, remembering that there is no result without a reason for it, and instead of a superficial examination, they carefully analyze and discover the cause of their failure, consequently their next case, properly executed under proper conditions, was a success. It was through this spirit, together with persevering efforts, and a knowledge of the failures of the Mason tooth and reason for same, that the Steele tooth was invented and I believe it will open a new era to the profession, as far as bridge-work is concerned, for it gives us a means of constructing a bridge, a radical departure from the old way, but a method which makes better workmanship possi-

ble in less time and with greater ease in manipulation. It is a time and labor-saver—and more, it is strong, can be used wherever it is possible to use a pin tooth and is sure in results.

And now, before I proceed to give a description of this tooth, allow me to call your attention to the first illustration (Fig. 1) which shows its main features. I have always been interested in detachable teeth, having used the Mason tooth for about four years and I feel that this experience places me in a position to better appreciate the advantages of the Steele tooth over any other. Perfection in any line is only reached by many years of careful study and constant work. It was necessary for the Mason tooth to be invented, tested and its failures noted before a more perfect one could be given the profession. The tooth of which I speak has every advantage and overcomes every disadvantage of the Mason tooth. It has a perfectly flat-ground back, something you will find in no other tooth, every facing, large and small, being ground to the same standard, assuring a per-

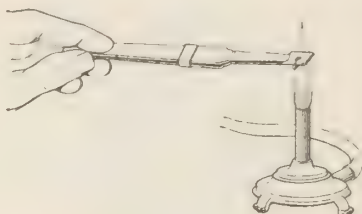


Fig. 2.

fect adaption between tooth and backing. The facings are entirely free from metal—they have a perpendicular hole and slot through the thickest part of the tooth, which is ground with perfect accuracy, consequently they are entirely interchangeable, which is a most essential point, making it possible in case of breakage to repair a bridge or crown, as the case may be, in as artistic a manner as the original. This is partially due to the fact that the backings as well as the facings, are made with the greatest care. The porcelains are dense and can be ground wherever necessary and repolished. Every facing is numbered according to its mold, a record of which should be taken by the dentist for future reference and use, should a breakage occur. The backings are made of gold and of platinum alloy. They are 26-gauge, with a *tubular post* riveted perpendicularly on a rectangular surface, which post exactly fits the hole and slot in

the facing and with the aid of cement, which adheres firmly to the ground surface, makes a very strong attachment. The platinum alloy backings contain 20 per cent. platinum, will not oxidize under heat and can be soldered the same as gold.

When making a bridge with this tooth, the facing is ground to the case exactly as you would a pin tooth, paying no attention to the backing. After this is done, we take up the backing, flow a small piece of 22-k solder over the rivet on the posterior surface to fasten the tube securely (Fig. 2), then the facing, as ground, is placed on the backing and trimmed in the usual manner, leaving the backing 1-32 of an inch longer than the facing at the incisal edge. A small saw and excising forceps are quite convenient for trimming at the neck. Removing the facing from the backing, I solder, according to the articulation, one or two pieces of plate gold on the posterior part of the backing, near the incisal edge (Fig. 3), which should be trimmed neatly



Fig. 3.

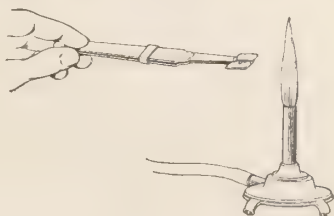


Fig. 4.

before soldering, by filling toward the facing, leaving the gold 1-1000 of an inch longer than the porcelain, which practically is a tip and yet does not show. In case of a Richmond crown, the backing is extended by soldering a thin piece of gold or platinum to the cervical end of the backing (Fig. No. 4) and burnishing over the neck of the tooth, as you will see in the case as it reaches you and in Fig. 5. After this is done, the facing removed, the surface on which the tube rests painted with an anti-flux, invested and soldered as in the usual way (Fig. 6) except that it does not require the same care and can be cooled suddenly without fear of checking or discoloring. The apron insures a perfect joint of the cap to the facing and the solder can easily be drawn between this apron and the cap. The facings are fitted after soldering with great care, all obstructions carefully removed, using no force whatever in slipping them to place. I always cement them on after the case

has been tried in the mouth with either Justi or Ames' cement.

In using the facings for dummies for bicuspsids and molars, the cusps can be swaged on an ordinary die-plate, trimmed, waxed to place and soldered, similar to the method in using pin teeth, or the following special method can be used: Take a piece of pure gold and solder it to the incisal edge of the backing (Fig. 7). This can be done in the Bunsen or blowpipe flame without investing. Trim this to about the size of the cusp wanted, then burnish over the occluding tooth on the plaster cast to a perfect occlusion. (Fig. 8.) This can now be stiffened with solder in the flame and waxed to place.

Before closing, by way of recapitulation, I want to give a few reasons why I use these facings. There is no dentist, no matter how skillful, who does not have an occasional breakage



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.

of facings in bridge-work, and in case he does, if constructed from these teeth, repairs can be quickly and easily made without removing the bridge from the patient's mouth. Every tooth of the same mold fits the same space, so that a repair is just as artistic as the original and the piece is absolutely as good as it ever was. There is no possibility of checking or discoloration when soldering, consequently we have a more natural appearance. It can be universally used. They are made from the pin tooth molds, therefore no thicker.

If we glance over the literature of the profession for the last decade we will be astounded at the amount of time and energy that has been spent inventing special instruments and methods of repairing bridge facings. Article after article has appeared, instrument after instrument invented, yet today we have no practical plan of repairing a bridge or crown containing a broken pin tooth. Why not recognize the truth at once that the pin tooth was never adapted to this class of work. They were invented and first used for plate work that can be removed from the mouth and repaired in the laboratory. As bridge-work came into use, the best at hand was selected and it has now after years of trial been demonstrated thoroughly that they are not suited for any work that is fixed in the mouth.

The profession has been groping about for something better—something radically different and really adapted to fixed crown and bridge-work. I thoroughly believe that this tooth which I have had the pleasure of describing to you tonight is exactly what we have been looking for.

I no doubt have failed to mention a number of the advantages of this facing, but I hope enough has been touched upon to cause a good and liberal discussion, which is always a benefit to us.

A CASE OF DOUBLE HARE-LIP AND BILATERALLY CLEFT PALATE.*

BY E. J. CHESBRO, D. D. S., CLEVELAND, OHIO.

The mother of the child under consideration, while never having either of these deformities, at first sight gives one an impression that she had been afflicted at some time with hare-lip; though she says that neither she, nor any of her family to her knowledge were ever troubled with either of these lesions. Her teeth, however, showed a decided characteristic of the Hutchinson type, which probably gives a clue to the cause of this malformation.

When presented for advice as to reconstructive measures, the boy was three months old. He had lived, contrary to the belief, hope and effort of the attending physicians, and that to be a good strong child. They believed he could not nurse, and such was really the case, and so they gave the babe an overdose of morphine and practically laid him aside to pass the remainder of his days in comfort, but such was not to be, and in time his demands were most urgent and emphatic. Fortunately for mankind, mother-love outstrips even the best of professional skill, and experiment after experiment was tried until the child was supplied with enough of a substitute for a hard palate to manage a large, soft rubber nipple and secure sufficient nourishment to quiet him. So much of the battle was won, but the pressure tended to flatten the arch and increase the irregularity, making the child more and more unbearably hideous, and finally the

*Read before the Cleveland City Dental Society,

parents sought advice on the possibilities of the case. A surgeon advised the removal of the middle section, nearly one-third of the lip, with the corresponding alveolar ridge, and the immediate closing of the space.

Fortunately this ten-day method of overcoming the difficulty did not satisfy parents and they sought more happy methods. I was called in consultation with the next surgeon to consider the case and was asked for my opinion and what could be expected from a mechanical appliance and its utility as against a surgical operation for a part or all of the palate trouble and the advisability of sacrificing any of the tissue.

Upon the left side the fissure was complete, passing through the lip, alveolar ridge, left superior maxillary and palate bones and their covering soft tissues, on through the soft palate into



Fig. 1.

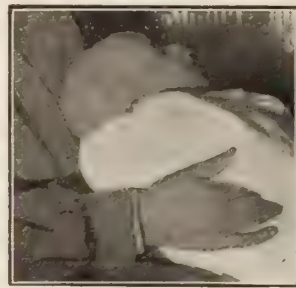


Fig. 2.

the throat. On the right side the opening was not so complete, as the fissure opened into but not entirely through the depressor alae nasi muscle. The alveolar ridge also being intact on right side, but the fissure opened immediately posterior to the ridge and passed through into both anterior and posterior nares, thus leaving the lip in three sections. The alveolar ridge was intact on the right side, but having, with the middle segment of lip, been pushed forward and upward until it projected out in front of the nose. The hard palate was divided into three parts, the lower edge of the vomer with more or less of the maxillary and palate bones and soft tissues attached, so that there was a ridge running through the middle of the roof of mouth, an eighth to a quarter inch in width, forming the middle segment.

The complexion of the child was very light, skin clear and clean except of face, the forehead more particularly being badly

covered with a scaly eruption. Mucous membrane of nasal cavities slightly inflamed. A harsh, hacking cough gave trouble, but otherwise physical condition was excellent. Several reasons demand a very early operation in all such cases.

Some of these are the most perfect development of tissues implicated; a child undergoes such an operation better than an older person; less liability to catarrhal and bronchial troubles if the fissures at an early date are closed as much as possible; there is less liability to imperfect tones upon learning to speak; and included in the first reason is the integrity of the dental arch and its appendages, which will be interfered with to a less degree if the operation can be performed before the deciduous teeth are erupted.

A plan was at once mapped out and an operation advised to immediately bring these margins together. In moving and



Fig. 3.



Fig. 4.

moulding the parts, pressure was applied by means of a splint, made of two parts of beeswax and one of paraffin, to which soft tissues take very kindly and a great amount of pressure can be applied thus without causing soreness. It is also comparatively cleanly.

By way of preparation for an operation, little was necessary except to clear up the skin, which was done by adding a little oil to the milk and a local application of cocoa oil and to keep the bowels in good condition. Three days were used in this work of preparation and the reduction of protrusions. This was accomplished by means of a steady pressure and a vibrator. Under this treatment the parts, which had been hard and unyielding, soon became quite pliable and were ready for operation. After the usual antiseptic precautions, chloroform was administered, very young children making the best chloroform subjects. The

child was placed upon its side with face inclined toward the floor as much as possible.

Figures 1, 2, 3, 4 were taken after pressure and vibration had been applied for reducing protrusion and hideousness.

Figure 5 was taken as child was recovering from chloroform after operation.

The first step was the springing together of the alveolar ridge upon the left side, and fastening together by means of a medium sized Angle's regulating wire, which was passed directly through the opposite sides and tightened until the edges, which had been freshened, were held tightly together. Next the lip was to be considered, and presented a more formidable proposition, as the portions seemed in size and shape to bear little relation to the normal form of a lip. The thin epithelial layer was dissected from the edges of the two fissures and left in a loop at the lower



Fig. 5.

part of the fissures. These sections of lip were brought together with silk stitches.

So far the operation was done at one time, but the lip was still very imperfect in contour and later several incisions were made and the tissue stretched to remove puckers and to expand the lip, in one or another direction. It was, however, enough of a lip so that upon going to sleep the mouth was closed and allowed to remain so, at which there was never, previously, any approximation. From this time on the child became as nearly as possible a nostril breather.

The child slept well with normal respiration and a very slight temperature on the first night. During the following day he fretted much at the adhesive plaster used to draw the muscles forward in order to relieve tension from the ligatures. He slept a greater portion of the time for the next forty-eight hours with

little rise of temperature, and then quickly regained normal condition, wounds healing rapidly. The hands were controlled by use of splints applied at the elbows.

In nine weeks' time the shape of the lip was so nearly perfect that the father, who had not seen it during this time, wrote after seeing the boy, "All I can say is, I'm satisfied, satisfied, satisfied."

The child, when seen a few days ago, had lost almost entirely the outward traces of his deformities and the roof of the mouth had closed one-half length of fissures.

The work is not completed yet and pressure must again be applied to close the posterior part of the arch.

These deformities are the most common of congenital imperfections and are attributed to injuries either traumatic or transferred to heredity and maternal impressions. Whether any or all of these are true causes of the lesion, it is unnecessary to discuss now.

This case is one of many different forms and degrees of imperfections, but was the worst I have ever seen and yet bids fair to develop into a nearly blemishless person.

I await with much interest the development and eruption of the teeth to see the condition in which so extensive an operation will leave them.

MORE PORCELAIN AND LESS GOLD IN CROWN AND BRIDGE-WORK.*

BY J. G. PARR, D. D. S., MARTINS FERRY, OHIO.

In taking up this subject of more porcelain and less gold in crown and bridge-work, I shall say nothing of the carving and baking of porcelain, but refer only to the porcelain crowns as they may be had of the dealers.

The so-called Richmond crown, as usually constructed, is a delusion and a snare for the unwary. First, you have no assurance after soldering that the facing will still retain its original shade, and if the heat of soldering has not caused it to change the shade, it will change in the mouth in a short time,

*Read before the Odontological Society of Western Pennsylvania, Pittsburgh, March, 1905.

owing to the oxidizing of the metal backing, which looks equally as bad as one of the incisor teeth would look with a large amalgam filling in the palatine surface.

Second, as to the strength of a crown of the Richmond type, unless the facing be tipped with gold very heavily, it will be easily broken in use, and to remove and repair a broken Richmond crown is no easy operation, and when the facing has been tipped with gold heavy enough to withstand the pressure of continual use, it is equally as unsightly as a gold crown. These defects may be overcome by using a removable pin crown; there are several makes on the market and the operator can choose the one that gives the best results in his practice. They are used in the following manner: The band is made for and the root prepared in the usual manner. A piece of gold is then cut to fit in the band; the band placed on the root, the gold that has been cut to fit the band, placed in it and pressed down until it rests on the end of the root, the band then carefully removed so that the piece inside be not disturbed, and then the two pieces soldered; the surface part of the band then removed and ground flush with the piece inside. The cap thus prepared is then placed on the root and a hole drilled through the head of cap for the pin from a removable-pin crown. A suitable crown is then selected and ground to fit the cap on the root. The pin placed in the crown and with a small amount of sticky wax is placed in position on the cap. It is then removed and the pin and cap invested in a small amount of investing material. When the investment has become hard, remove crown and solder pin in cap; then polish and set the piece with cement, setting crown and band at the same time.

By this method there is no changing of shade, and if by any chance the porcelain be broken it is comparatively a small matter to grind and set another porcelain on the old post.

These crowns are strong and durable, and if carefully selected will more nearly approach the natural teeth than any crown where facings are used, can possibly do, and a banded Logan crown will not compare with it in the ease of making and setting.

In bridge-work, the diatoric or pinless teeth may be used to great advantage and overcome the same faults as before pointed out in the Richmond. The method I follow in using these teeth is to burnish a piece of plate gold to the back of the tooth, then

burnish over the edge, forming a cup to hold the tooth, then punch a hole through gold opposite hole in the tooth; in this I solder a pin from a plate tooth. This gives the desired anchorage to hold the tooth in place. When all the teeth for the case in hand has been backed in this way, each tooth is fastened to the backing, with a little wax; the teeth are then articulated and held in place with wax on the backings; the teeth are then removed and case invested and solder flowed over the backings to the desired thickness.

After the case has been polished, the teeth are then set, each in its separate place with cement, the bridge is then ready to be placed in the mouth, as you would set any other bridge.

Bridges made in this manner have a number of advantages over the old method of using facings. In using these teeth in this way there is no danger of broken facings, or the shade changing under heat of soldering, and the display of gold is greatly reduced. You also have the articulating surface of porcelain, in place of gold, which imparts that metallic effects in masticating complained of by many patients.

Should a tooth break, another may be set in its place and have the repair equal to the new, and with very little work compared to replacing a facing. And the time required to build a piece of work in this way is greatly less than to use facings and tip them with gold, which is the only safe plan when using facings.

Crowns and bridges made as herein described, if carefully selected and arranged, will give the nearest approach to the natural it is possible to get in this class of work. There will be none of that dull and unnatural effect that is seen in those cases where facings have been used; and we should endeavor to imitate the natural and hide those monuments of our work, not display them.

DISCUSSION.

DR W. H. FUNDENBERG: We all have our ideals, we bring these methods to our societies, and in the end we obtain better results. We may obtain them by a maximum or minimum amount of labor, and still feel that we are not discarding some things we have used.

I refer first to the Richmond crown—that is, I take it, the crown with the porcelain facing. Now, there are certain statements that have been made in connection with that crown, which I can't agree with, and I think it would be wrong for me to allow them to pass without referring to them.

We are told that these crowns change, that fusing will retain the original color or that if the heat in solder has not caused them to change, it will after. I have not found a piece of porcelain crown in make that if manipulated carefully, can be brought through, without changing colors.

In certain cases the change in the tooth, whether it is because of the enamel we use, is due to the reflection of the metal through, as the doctor has stated.

Perhaps some of you have observed the metal backing if placed on an English facing, is more likely to change, than if placed on a facing of White's manufacture.

The very fact that these teeth will not break, and the color of the metal will indicate the method by which we can overcome some of these objections in shading in inlays, and we are told that if we use the various metals we can change the color of these facings. I would say, that metal does not play an important part, if we are careful in the selection of the materials used, as they do not change color after they are in the mouth. Owing to the fact that we use pure metal, there is very little oxidation of the metal. Those of you who are familiar, and have had experience in constructing know, however, that sometimes a change in color occurs when solder passes between backing and facing. If it passes between, and there is sufficient quantity to cause it to be oxidized, it might mean that it has not been adapted. These colors change, after they are in the mouth.

Now, as for the breaking of these porcelain facings; they do break sometimes, but the per cent. is small.

I have held that a man who attempts the construction of crown or bridge-work must be an expert in bridge building; he must understand the application of force. We are led to believe that many do not give it any attention in bridge-work, crown-work or plate-work, but the per cent. is small in plate-work. In plate-work if it is placed in its proper angle, bridge-work and crown-work will be simple.

Reference is made to the large amount of gold used on the occlusal edge of the bicuspid, or molars.

I think one of the greatest stains on the dental profession to-day, is the block of gold placed on these points, and I hold it is unnecessary—it is also unsightly.

If you use the Richmond crown, you should have room there sufficient to retain the cusp of that tooth.

Those of us who have used these crowns so long, and done it to the best of our ability, are not willing to have it said that our work for twenty-five years has been as stated in that paper.

Now, regarding the removable crown, or the removable pin—I want to say there is room for many improvements as regards size, shade, etc. There is one advantage in the use of these crowns, we know that whether these crowns break or not, it seems to the profession that they are securing something that can be modified, if broken.

DR. GEORGE L. SIMPSON: The only thing I would suggest is, the doing away with gold altogether, in the construction of crown or bridge-

work. I discarded the use of gold in crowns fifteen years ago. I have not used it since. I discarded the use of gold in bridges, using bar soldering, and in some cases, using porcelain facings.

In other cases, I used the porcelain alone. Often this is very much to be desired, but in other cases of the porcelain facings, to secure the desired color, it is no trouble to fill up the tooth entirely without the use of any facings whatever.

I think we have often made mistakes in this way, I know I have seen other people's mistakes, and I know they have seen mine.

I have not liked the idea of gold for many years, and I believe that all porcelain, whether for crown or bridge-work, is the equal of those constructed on the gold basis.

DR. J. A. LIBBEY: I was pleased with the way with which Doctor Fundenberg took up the one point in reference to the gold-tipped crown. I was glad to hear him speak of it as he did.

Just as the essayist said, it is one of the most unsightly things we can do, and I am glad that Doctor Fundenberg so emphasized it in that light.

I was glad to hear the essayist advocate the matter of gold for bridge-work.

I claim that a span of three teeth filled in for bridge-work is entirely too long to place in without the soldering.

There are many cases of bridge-work that are very difficult to make a span, but I believe that everyone who succeeds in bridge-work must adopt the removable plan, and where there are three or four teeth, in every instance put in a saddle.

DOCTOR PARR: Doctor Fundenberg referred to the facing without the tip. When I spoke of that on plate, crown and bridges, I was not aware of just what procedure most of the dentists in this part of the country used.

In our part of the country most of the bridges we see, the facings are all tipped, which, to my mind, makes a very unsightly piece of work.

The crown the Doctor complained of is very nice, but one of its great disadvantages is that, when it breaks you have trouble. If another crown should break it could be replaced.

If in backing there be a space that would admit the mouth secretions, and everyone knows what a beautiful odor results, fill up the space with cement. It will not dissolve out.



PRESIDENT'S ADDRESS.*

BY S. M. STAUFFER, D. D. S., PITTSBURG, PENNSYLVANIA.

We have covered a period of another year in the march of progress in our professional life.

The year has been a grand one in the advancement of our profession.

One of the important events was the assembling of the International Dental Congress at St. Louis, the benefits of such a meeting cannot help but be felt far and wide.

There is no question in my mind but what this meeting of the Odontological Society will do its part toward disseminating the more recent advancements of dentistry.

One of the best methods of keeping abreast of the times is by associating with your colleagues, and the best means of doing this is by becoming a member of the nearest dental society, it gives an opportunity to hear the opinions of your elders, the recital of the progress of dentistry, not only in your own community but of the world, it gives you courage to speak of your own work.

Besides every community has a few men especially skilled in some department of dentistry who will often give you more information during a short session of a few hours than you could acquire by weeks of reading.

My advice then to the recent graduate is, affiliate yourself with the nearest dental society, this is essential, without it your loss cannot be computed in dollars and cents

Membership in your local society means membership in the State Society, the cost is little, the return is great.

Next to the ability to do the work is your personality, in fact the two should be inseparable; if you have the ability and a mean, disagreeable disposition, people will not want you.

It, therefore, behooves you to be pleasant and agreeable.

I feel that during the past year dentistry has been raised several notches in the advance toward a perfect art, and I am pleased to say that in a small way we have helped in its consummation.

Among the interesting appliances and methods that have been brought to our notice during the year I might mention the

*Read before the Odontological Society of Western Pennsylvania, 1905.

pyrometer furnace which possesses the advantage of determining the exact amount of heat required to fuse a piece of porcelain so as to give it the proper shade and strength; this advantage is most appreciated by those who take a special interest in obtaining the best possible results.

Amalgam has received considerable attention and I trust the paper on this subject as will all the papers, promote a hearty discussion.

Gold inlays are being used more than in former years and I think with better results, for the methods of making them have been improved.

Inlay matrix lining to overcome the shadow effects of cement in inlays has just been presented. I trust it will be a grand success, for the shadow problem has caused no end of worry to both operator and patient.

The clinics and table demonstrations I am sure are most worthy of your careful attention and observation; by referring to the program you will observe a feast of good things prepared for you.

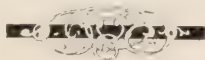
One of the important matters that demands our attention is reciprocity in our exchange of license between the States to practice our profession. This was touched upon by our former president in his annual address and I trust it will be agitated until it becomes universal. I would suggest that the Society take some action to bring about successful results.

In conclusion, I wish to say that the soliciting of talent and gathering material for the semi-annual meetings has been as usual strenuous, but I am sure the members will agree when I say that our work has been amply rewarded.

I feel the deep obligations we owe our professional brethren who have so willingly come forward to our aid at these meetings.

Credit is due the secretary, the committees, and all the members who have so heartily co-operated with us.

My desires and ambition shall, as in the past, be spent in the interests of our organization, and I admonish you all, here and now, to take off your coats and go to work.



A PECULIAR CASE.

BY G. F. HITCHCOCK, D. D. S., PLYMOUTH, INDIANA.

Mrs. B——, middle aged, some three years ago commenced to suffer continually with severe pains in her jaw, the right side. Physicians here diagnosed the case as chronic neuralgia of the inferior dental nerve. She went to Ft. Wayne and was operated upon, the nerve being severed, there being no return of pain for nearly a year, when it commenced again so severely that she had to be kept under the influence of morphine. She was again operated upon by the same surgeon, who found the two ends of the nerve had united. This time she had relief for only a few months and they had to undergo a similar operation, with relief only for a short time as the result. These three operations consisted of making an incision through the side of the face in the usual way, which resulted in leaving a large scar which disfigured the face greatly. I was called in when the pain had commenced after the third operation and found the following conditions:

The patient was unable to move jaw without the greatest pain, unable to take any nourishment except of a liquid nature, in a bad way physically, breath very offensive owing to the inability of cleansing the teeth properly, and so nervous that it was with the greatest difficulty that I could make an examination. After some study I concluded to operate, and patient was placed under an anesthetic. It was with difficulty that her jaws could be opened, as the muscles were set from the jaws being held in the same position for so long. I removed the third molar on the affected side, the first and second molar being missing, and with a trephine in the dental engine followed the course of the root downward and backward until I reached the nerve. I found the two ends of the nerve united and much enlarged at the point of union. The nerve was then cut out and with a large broach I cleaned out the canal both ways as thoroughly as possible. After washing it out thoroughly I used pure carbolic acid and again hot water, and then with a metal syringe injected hot paraffin as deeply as possible with the intention of preventing the two severed ends from uniting again. There was no hemorrhage to speak of, owing no doubt to the blood vessels having been affected by the previous operations.

The remaining teeth on the lower jaw were then extracted.

The following day the patient was able to sit up and take some nourishment, and could move her jaw quite freely. She was instructed to move her jaw frequently. The only pain or inconvenience she suffered being the soreness usually attendant upon the extraction of teeth.

Since that time she has steadily improved physically and has complete use of her jaw and will have a lower plate in a few days.

The idea of using paraffin was a new one to me, but the results seem to prove it a good one. The advantage of an operation like this seems to me to be great in that we can do away with disfigurement of the face.

HOW TO MAKE A PERFECT-FITTING GOLD CROWN WITH SOLID CUSPS.

BY E. T. HEDLUND, NEW ORLEANS, LOUISIANA.

This method has not been in vogue with myself any great length of time, but I have had satisfactory results, and that is what we are all after.

After preparing tooth, taking measurement, etc., fit the band in usual manner, except to have top of band perfectly level, as it will have to abut a flat surface. Solder band with 20-k. solder. Now take an impression of crown and adjoining teeth, also one of occluding teeth, and mount on a crown articulator.

Carve cusps to articulate and take an impression of them in an investment material, such as sump, etc., being careful not to have the investment material above the joint of wax and gold.

Mold a die of Mellotte's metal, after which make a counter-die, preferably in lead; stamp up cusps, cut surplus gold away, place the cusps in previously-made plastic impression, and fill level with 20-k. solder with the aid of a blowpipe. File soldered surface level so it will have a perfect joint with the band.

Place the band on model, insert piece of wax, then warm cusp so it will adhere to the wax, and place it in position. If you have been careful you will then have a perfect articulation.

Take crown and wire it while cusps are waxed in position, melt wax out, and solder with a small piece of 18-k solder, being careful not to fuse the 20-k. solder.

It is obvious that the cusp filled in this manner is advanta-

geous over the method of filling cusp and soldering it to the band at the same time, by the absence of solder on the inside of band, which is annoying, especially in molar crowns with a narrow band, because of a close bite.

SUCCESSFUL TREATMENT OF ANTRUM DISEASE.

BY L. W. JORDAN, BINGHAM, ME.

Patient, married woman, about thirty-eight or forty; nervous temperament; tall and slim, not fat; lives about ninety miles from here.

Some years ago the third upper left molar abscessed and was extracted and one root left in. I didn't extract the tooth and have the patient's statement for this.

About three months ago she went to the dentist in her place and wanted the root extracted. This he refused to do, and gave her a mouth-wash. As the root was covered by mucous membrane and all the upper teeth were extracted, she wearing a plate, he might have thought it was something else and so gave her a mouth-wash and kept putting her off. She next went to the physician. He refused to do anything, stating that if there was a root there she would have blood poison if he extracted it. After six months' trouble she was advised to come and see me, her parents living here. After a little exploring I found a root under the gum on the left side, in the region of the third molar. After cutting away the gum over the root and getting the outlines, I extracted it with Tome's Universal root-forcep, being successful the first time. The root had no pus on it and no sac on the end, the root looking very clean and white, and had the appearance of a palatal root of the first or second upper molar.

In two days she sent for me to come and see her (she still being with her parents here) as she was so weak she couldn't come and see me at the office. On finding that an abscess had broken in the nose, I diagnosed the case as disease of the antrum and commenced treatment at once.

I used an air-tight syringe with rubber bulb in the middle and a rubber tube at each end of bulb. In the exit tube I placed the bent tip to my common water-syringe, made tight by ligature. The end of the tip I passed through a small opening made in a

piece of soft vulcanized rubber, shaped like a common acorn, so when placed in cavity with gentle pressure, it closed it and prevented the tip from coming in contact with the sensitive tissues.

I commenced by using boiled water (this place is supplied with spring water) and Wampole's antiseptic solution, one to four parts, and as hot as could be borne. The first syringing brought from the nose vile smelling dark brown pus, that scented the whole house. The first syringing was so painful that the patient fainted. In a few moments I used dioxygen, four parts boiled water to one part dioxygen, with a little common salt. After a thorough syringing with this, I followed it with glyco-thymoline (I used Kress's), one to four parts boiled water, and at every syringing the liquid was as hot as could be borne comfortably. The next day I syringed it three times, using the three different liquids separately given above in boiled water, always ending with glyco-thymoline. The patient being very weak and having no desire for food, I ceased syringing for two days and prescribed elixir calisaya, quinine, iron, and strychnia, thirty drops, in a little water, three times a day before meals. For a food she used beaten raw egg and wine, and some liquid food.

After the two days were up and she was a little stronger I commenced syringing again from the cavity to the nose, through the antrum, using first Wampole's solution, then dioxygen with salt and, lastly, glyco-thymoline, as hot as could be borne, using one to four parts boiled water. After the third or fourth syringing the bad-smelling pus ceased and we only got a little yellow pus. I syringed in the morning, as she said she felt stronger then and wouldn't have to dread it all day. As a very small rubber tube used as a drainage was so painful in the cavity, I used a large gutta-percha canal point with a little cotton around it dipped in campho-phenique, full strength, to prevent cavity from healing. After syringing for about twelve days, using three solutions as given each day, I couldn't force any more fluid through, and as I was quite sure that the very little mucilaginous matter that came out of the nose was in the folds of the mucous membrane, above the opening of the antrum in the nose, I prescribed as a nose-wash three times a day for both nostrils, dioxygen with a little common salt and four parts boiled water, followed by

R.

Listerine \mathfrak{z} j
Glycerinum \mathfrak{z} iij
Sodii bicarbonas,
Sodii borasaa \mathfrak{z} jss
Aqua Destilq. s. ad \mathfrak{z} IV M

Sig. One part of solution in two parts warm boiled water, snuffed up the nose three times a day.

The patient, at this writing, is now at her summer cottage by the lake, improving in health, and the discharge has entirely disappeared. I might state that she had a little affection of the left eye and ear caused by abscess, but which has subsided.



SUGGESTIONS

TO TRUE CARBORUNDUM WHEELS.

Drs. Stansbury and Alexander, Lexington, Miss.

True carborundum wheels by running them wet against a dry coarser carborundum stone or wheel.—*Dental Hints*.

A HINT IN REMOVING LOWER-MOLAR PULPS.

T. A. Lynch, Downey, Cal.

When removing pulps from lower molars never allow yourself to be misled by thinking there is only one canal to be operated upon in the mesial root. Look well to the buccal and lingual, and do not hesitate to cut tooth structure until you are positive you have exposed the openings to all the canals.—*Dental Review*.

USE OF MENTHOL IN PYORRHEA CASES.

Sometimes in operating for pyorrhea the tissues are sensitive. It may not be advisable in a given case to employ cocaine on account of contra-indications. In such cases pack the pyorrhea pockets with menthol crystals a few minutes in advance of the operation. It will be found a great relief to the patient, and is in every way a more pleasant application than cocaine.—*Dental Review*.

A USEFUL PREPARATION.

A bottle of glycerine diluted to half strength with rosewater or with water flavored and perfumed is a useful preparation to be kept on hand constantly. Applied to the patient's lips before beginning to operate it will overcome a tendency to become sore.

A little of this preparation sweared over the holes in rubber dam facilitates its passage between the teeth and is much less objectionable than soap or vaseline, which have been recommended for the purpose.—*Dental Review*.

PULP CAPPING MATERIAL.

Dr. W. A. Bostwick has been exceptionally successful in capping live teeth, whether for single crowns or bridges, by first drying them and then coating with a chloroform solution of gutta-percha, drying this by means of the chip-blower before placing the cement-filled shells in position. As a bar to thermal changes, and what is perhaps quite as important, those sometimes charged against the chemical action of the phosphoric acid, it meets the requirements as perfectly as anything else within our reach.—*Dental Office and Laboratory*.

A GOOD SEPARATING TAPE.

Some years ago a friend handed the writer a piece of separating material which was the very best thing he has ever seen for separating teeth. He has never been able to learn who the originator was, but it is prepared in the following way: Linen tape of the proper width is soaked in thift chloro-percha till it becomes saturated. After the chloroform is evaporated it leaves what is practically a gutta-percha tape, the very toughest and most effective material that has ever been suggested. It does not disintegrate like linen alone; it will remain in place perfectly, and it does not cause irritation to the soft tissues. Its action, while very effectual, is so gradual that patients seldom or never complain of the least discomfort.—*Dental Review*.

CAVITY PREPARATION FOR LARGE RESTORATIONS.

Dr. F. E. Roach gave a valuable demonstration of cavity preparation in general, and more particularly the preparation of cavities for large restorations in molars and bicuspid, the particular feature of which is to fully eliminate attenuated margins

that are exposed to the forces of mastication. This was obtained by carrying the margins of the cavity slightly beyond the sulci, terminating somewhere between the sulci and the crest of the cusp, thereby leaving the angle of the cavity margin obtuse, and at the same time producing an obtuse angle at the margin of the inlay itself. The wall, which is usually cut perpendicular to the long axis of the tooth, is cut in this case so that it would represent an angle of about 15 degrees from the perpendicular.—*Pacific Dental Gazette*.

SOLDERING PLATES TOGETHER OBJECTIONABLE PRACTICE.

Dr. G. W. Haskins.

I object to soldering plates together to stiffen them. A plate that is so constructed has lost all its elasticity; when bent it stays bent. It is better to have one plate of sufficient thickness to give the stability required, than to solder two plates together. I do not object to the use of 18k. gold in the mouth. I use it a great deal, especially in the lower teeth. There is one great objection to the use of a higher grade gold—it is softer, more easily adapted to the mouth, and consequently cannot bear the strain in the mouth so well. For partial plates I frequently use the alloy of gold and platinum called clasp metal. If rubber adheres to 18k. gold, so much the better; that is the gold to use and not the higher grade.—*Dental Review*.

ADHESION OF VULCANITE TO METALS.

Walter M. Bartlett, D. D. S., St. Louis.

During the process of vulcanization of rubber upon metallic bases, other than silver or copper, but alloyed with these two metals in certain proportions, the liberated sulphuretted hydrogen in its nascent state acts upon this silver and copper alloy, forming respectively silver and copper sulphides. This chemical removal of the alloy from the metal base will leave the surface of the base in a more or less pitted condition and this fresh rough surface offers a suitable place for the ready adhesion of the vulcanite to the metal. Whether the sulphides of silver or copper in their *statu nascendi* are instrumental in bringing about a closer union

is, in my mind, doubtful. If this were the case, vulcanization upon pure silver and pure copper would not be failures.

From experiments we find that there is sufficient adhesion of vulcanite to 20 and 18k. gold for all practical use were it not for the fact that there is in time a change occurring in the vulcanite which, as it contracts upon itself, becomes detached from the metal base; so to obtain the best results it is necessary to aid adhesion of vulcanite to the metal base by roughening the contact of the base, attaching soldered pins or loops so they can be finally imbedded in the indurated rubber. Great care should be taken in placing the wire finish both labially and lingually to form an underhold for the lodgment of the vulcanite.—*Dental Review*.

ABSCESS TREATMENT.

J. P. Buckley.

A prolific source of septic pericementitis is escaping micro-organisms and ptomaines from putrescent root-canals, but in many instances abscesses may be prevented by the use of proper remedies at the proper time. The first duty is to open the canal and let the confined gases escape. Both the tooth and the infected periodontal membrane requires treatment. To aid nature in readjusting the abnormal condition the following prescription will prove useful:

R. Potassi iodidi ʒ 1;

Syrupi sarsaparillae comp., fʒiii. M.

Sig.—Take a teaspoonful three times a day after meals.

The teaspoonful may be added to half a wineglassful of water to further dilute the potassium iodid.—*Dental Review*.

THE COLOR PROBLEM IN INLAY MAKING.

Dr. C. W. Thompson, Chicago, Ill.

In *carving* and *building* the porcelain prior to fusing there is some new light on the color problem. where by the use of deep-laid, pronounced blue enamel colors showing through white, it is possible to produce a reflected condition, called "high light," that gives a very natural appearance to ridges and cusp points of bicuspid and molars. The same idea is effective in the construction of strictly proximal fillings in incisors,

which when exposed to direct light are correct, but when in the shadows or under reflected light appear opaque. By using a thick layer of very light and translucent enamel porcelain on the surface and an intense, very narrow line of the desired shade very deep, the effect is to dispel the opacity and not change the former condition.—*Dental Era*.

TIN CEMENT.

Dr. F. C. Brush, N. Y.

Tin cement is a mixture of zinc oxide and tin forming a light-gray powder, with here and there the shimmer of a fine particle of metallic tin. The tin is obtained by precipitation, and is so light and flaky that one gramme has three times the volume of a gramme of zinc oxide. It may be mixed with good cement liquid; the use of Harvard liquid producing a normal slow hardening of the mass, while the Alphos or impervious liquids hasten the hardening. In mixing the best results are obtained by using the greatest amount of powder that the liquid can be made to take up. The pledget may be removed from the slab and more powder worked in by kneading between the fingers; it will then have the consistency of very thick putty and still be very adhesive.

To manipulate the cement in the cavity the instruments should be coated with vaseline to prevent their becoming clogged with the cement. Though the vaseline becomes worked into the mass it does not seem to interfere with its hardening or the consistency afterward, and only seems to render it more impervious.

The mass when set is very hard and of a dull, steel color, but when ground and polished with a burnisher a bright metallic luster is produced.

This material may prove useful in those cavities where it is not possible to secure satisfactory undercuts for an amalgam and yet the filling must stand a deal of attrition.—*Items of Interest*.





CORRESPONDENCE

AIROFORM CLINICS.

Editor, Dental Summary:

Since the publication of my article entitled "Airoform—An Auto-Clinic," in the April SUMMARY, with its promise that at some future time I might have something more to say to your readers concerning safe analgesia and dangerous, death-dealing anaesthesia, I am receiving many letters asking for further information.

I am constrained to economize my time and strength by sending you for publication, if you choose, a copy of a letter just sent to Mr. Bigelow of The Ransom & Randolph Co., which contains all the information I can give your readers at the present time and which describes two clinics at the recent meeting of the Illinois State Dental Association.

I believe in Airoform and the inhaler. Doctor Weisell has accomplished an achievement of incalculable value to humanity, a contribution toward the exact in science above all praise.

Yours truly,

A. C. HEWETT.

Chicago, Ills.

CHICAGO, May 17th, 1905.

C. S. Bigelow, of The Ransom & Randolph Co., Toledo, O.:

MY DEAR SIR:—Last week I was in attendance upon the Illinois State Dental Association, held at Moline, Ill. Dr. Edward Wright Dodez was my *compagnon de voyage* from Chicago. From him I learned that your company was in some way interested in the new anaesthetic, Airoform and in an inhaler for the administration of the same.

You may remember some time since, the occasion of our meeting and having some conversation in relation to the merits they possessed. I think either you or Doctor D. asked my opin-

ion. I replied in substance that "I was prepossessed in their favor, but had not given sufficient study and examination on which to form and express commendation or disapproval. They looked promising, but a test must be made before I cared to say what I thought of them."

I am now ready to give full answer. After I saw you, I took some of the Airoform to the point of analgesia; while alone in my office I inhaled it as I had been accustomed to give chloroform to patients for subduing pain. A few inhalations sufficed. I did not lose consciousness or muscular motion and power, but so completely were the peripheral nerves obtunded that I could have had a tooth extracted or a finger amputated entirely free from pain. I was convinced then, but thought I would wait before giving opinion till after the dental meeting above spoken of.

I do not think you expected then that I should give you personal answer as aforesaid, but that you would get answer through Doctor Dodez. I do not think you expect a letter of this nature. Certainly you or others of your company have not asked for anything in the nature of a testimonial. I do not even know that one is desired. However, I trust you will read what I write. I would if I could infuse some of the enthusiasm pervading me in relation to the discovery of Airoform and invention of the "Appliance." Doctor Weisell has wrought better than he knows. It seldom falls to the lot of a single investigator to accomplish so much.

You and your company are in a position to do an immense amount of good to humanity. It is because of this power for good that I volunteer this letter. Excuse me if I speak frankly to you. I have known of your company some time and never heard a whisper against, but much in praise. I have read somewhere, "To whom much is given, much will be required." Pain, physical anguish is everywhere—accidents of daily occurrence. None of us know how soon we may be hurried to a hospital to writhe in agony under the surgeon's knife, or while a dislocated joint is being "set." The dread of anaesthetics is universal, fostered by deaths from shock of anaesthetics, or hyper-anaesthesia, occurring daily in every large city. I believe as I believe in my existence that were I ubiquitous, omnipresent, even with my finite knowledge, I could administer Airoform with Weisell's Inhaler a million times to complete obtundure

of pain and not a collapse or death from the anaesthetic would occur. What were possible for me is alike possible of accomplishment with millions of others. Then think what of benison lies at your doors.

I will give you briefly evidence conclusive to my mind. Sir J. Y. Simpson gave chloroform 10,000 times and more without a fatality. I have administered it more than 20,000 times without a fatality, collapse, or an approach to either so nearly as to hinder a single patient from walking from the chair out of the office. Not a single one had to be carried. I will relate what took place at our dental convention during two clinics with the Airoform and Appliance, in presence of hundreds of on-lookers, men and women.

The first clinic was with myself. I carried in my mouth a poorly developed, partially impacted third molar, with which I had fussed to keep during the last ten years. I had lost its occluding inferior mate. It hung idly except to give pain and annoyance. I argued, "Here is a chance to test: 1st Analgesia, 2nd Airoform, 3rd the Inhaler." I hunted the Supervisor of Clinics, Dr. S. F. Duncan, for a permit, as I was not "scheduled," who kindly consented. Dr. Truman W. Brophy very kindly consented to operate for extraction. Everything ready, Doctor Brophy (from habitual caution, I presume) "examined" for heart action. He found an intermittent unmetronomic beating, a feeble fluttering pulse difficult to count and protested sympathetically and earnestly against my taking the anaesthetic, adding: "In my office I would not permit it." I was aware of my long-taxed wearying heart, but reasoned, "The shock (?) of the anaesthetic (to analgia) is far less than that of pain caused by dragging a tooth from a very sensitive inflamed socket." Doctor Brophy consented to operate only on condition of my promise to stop inhaling if any ill symptoms developed. Doctor Dodez worked the valves, I held mouth-piece and inhaled cautiously after announcing that "I had no notion of suicide for the benefit of the Illinois Dental Society," signaling to Doctor Dodez when to increase per cent. of anaesthetic. In about one minute (a guess) I said "pull away" and opened my mouth. I plainly felt the grasp of forceps on my tooth. The crown was so short, the shell so thin (from previous excavating for filling) that it crushed, and a second and third thrust was necessary to complete the operation. I was entirely

conscious, but did not experience the slightest pain, and in less than two minutes (again a guess) got from the chair feeling better at "heart" than before the operation; and at once superintended the analgiation of a boy, aged about seven or eight years and the extraction of an ulcerating, pus surrounded, upper baby incisor. The lad feared the mouth-piece, refused it, but consented that I use a handkerchief, dipping a portion in the Airoform, placing it in my palm, as a mask, and waving it above his mouth. In two or three minutes (again a guess) he "settled" to "influence" and a D. D. S. (whose name I cannot recall) did the extracting, the lad opening his mouth and "holding still." As soon as tooth was removed he burst out with, "*It didn't hurt a bit.*"

The father of the lad, evidently a mechanic, defined as such by his oil-spotted work-day suit, looked into my eyes through tears in his own and said with tears in his voice, "I t-thank you for kindness t-t-to *my boy.*" I looked at the lad and thought, "He's my boy, too." I have been at the accouchement of new evidence given by the guileless lad, that Airoform is *potent, safe*, convenient; and its analgesic miracle no less a benison than each of the 20,000 ones at which I had stood sponsor with chloroform during fifty odd years of successful use.

I beg you, my dear friend, do not be impatient while striving to reach the end of this long letter. Think in charity what the two clinics mean to you. I doubt if a more unpropitious case for anaesthesia can be found in the first ten thousand people taken at random than I am; and a more convincing one could not be found than the poor man's "my boy," with his exultant "*It didn't hurt a bit.*"

You may do as you wish with this letter, hastily written, if you will read between its lines a great hope shining for your successful promulgation of and acceptance by all the people of the *truth*, though spoken by my humble self, and first published by me, that in "Operations under partial anaesthesia" (analgia), *there is no shock*, by reason of it, and that you may have great success in introducing Airoform and its Appliance into general use.

Very sincerely yours,

A. C. HEWETT.

Chicago, Ill., May 17, 1905.

BANDS FOR CROWNS.

I have just been reading the article, "A Practical Crown Outfit and Swaging Device," in the April SUMMARY, and it strikes me that the method I am using to obtain the model is the more practical.

I simply buy No. 30-gauge copper plate, and after grinding down the tooth to be crowned, I take wire measure at gum margin and before cutting the wire I note the size of cartridge I should use. Then I cut the wire and straighten it out, cut a piece of my copper plate just as you would a band for a banded crown. You can cut the piece with a slight flare, and get the proper contour easier. I then festoon to fit the gum and trim the occlusal end, place in position, take impression and bite just as the article suggests.

I find it is just as quick as the cartridge method, and you are certain of a close-fitting band. You can solder the copper bands with silver solder or a low carat jewelers' solder. I have a piece of 8k. that I have been using very satisfactorily. It is not expensive, as it requires so little to catch a band.

H. J. EMERY, D. D. S.

Dayton, Ky.

PLEA FOR A CHANGE OF SYSTEM.

I have been greatly interested in reading the papers on "Dental Education" by Doctors Eames, Chittenden, Baldwin and Marshall, as given in the *Journal of the American Medical Association*, together with the discussion of the same, and cannot refrain from commenting on one of the points brought out in that discussion.

Doctor Truman, of Philadelphia, a man who would probably resent quickly any charge of "commercialism" brought against his college, calmly remarks, during the course of his discussion, "This very day I have before me large numbers in our university who are utterly unfit to practice dentistry."

He thoughtfully adds that it "is a source of tribulation to me that I have to meet that sort of thing."

He says they lack the "manipulative ability," and, what is more, "they never will get it."

Now the blame is not Doctor Truman's, but the *system*.

If our colleges are to raise the standard of the profession—and we must necessarily look to those institutions to do it—there must be a system whereby students who show themselves to be “utterly unfit” shall be required to drop the work.

In the announcement of one of our leading universities appears this statement: “Students who are manifestly unfit to practice will be notified to drop the work.”

However, this same school pays no attention to the statement. Students are allowed to go through, provided their standing is good in the theoretical work.

Leaving aside the harm done to the profession by allowing such men to complete the course, some thought should be given to the effect on the student himself. Mistakes are apt to be made in choosing a life work. We see all around us men who have taken up work, found themselves unfitted for it and changed—lawyers, preachers, merchants—and why not dentists?

But it is a costly mistake to the last named.

There is, perhaps, no profession entailing so great an expense in getting started as dentistry, and it is manifestly unfair to the man and to his family (who, in nine cases out of ten, have to bear the burden of the expense) to allow a student known to be “utterly unfit” to graduate.

Suppose the man realizes his shortcoming after leaving college, is it not likely that he will try to retrieve a portion at least of the money expended during his course?

And yet, such action not alone helps to lower the standard of dentistry, but it produces its effect on the man himself. The spirit of commercialism takes hold on him; it is the almighty dollar which is constantly before his eyes.

It may not be “commercialism” which prompts our colleges to graduate such men, but if not, what is it?

The National Association of Dental Faculties is working to raise the standard of the profession, and no doubt four years are now absolutely necessary to complete the work as outlined in the announcement, but it seems to me if they would add to the entrance requirements a manifestation of manipulative ability on the part of the applicant, a great step would have been taken toward uplifting our profession.

H. OSTROM BARNES, D. D. S.

Lowell, Mich.



SOCIETY

NATIONAL DENTAL ASSOCIATION.

SECTION ONE.

The following program will be offered for the consideration of this Section in Buffalo, July 25-27, 1905:

- Dr. Calvin S. Case, Chicago, "Orthodontia."
- Dr. C. Edmund Kells, Jr., New Orleans, La., "Orthodontia."
- Dr. V. H. Jackson, New York, "Orthodontia."
- Dr. R. Ottolengui, New York, "Orthodontia."
- Dr. H. H. Johnson, Macon, Ga., "Prosthetic Dentistry."
- Frederic Freeman, Boston, "Prosthetic Dentistry."
- Dr. W. Storer Howe, Philadelphia, "Crown and Bridge-work."
- Special paper by Dr. R. H. Hofheinz, Rochester, N. Y., "The D. D. S. Abroad."

DR. THOMAS P. HINMAN, *Chairman*.

Atlanta, Ga.

DR. J. G. FIFE, *Secretary*,

Dallas, Texas.

SECTION TWO.

The following program will be offered for the consideration of this Section in Buffalo, July, 25-27, 1905:

- J. V. Conzett, Dubuque, Ia., "Gold as a Filling Material."
- B. L. Thorpe, St. Louis, Mo., Lantern Lecture—"Pioneer Manipulators of Gold Foil."
- Chas. Milton Ford, New York City, "Dental Education."
- W. R. Clack, Clear Lake, Ia., "The Necessity for and Method of Preserving the Integrity of the Interproximal Space."
- Dr. D. O. M. Le Cron, St. Louis, Mo., "A. Few Experiments in Porcelain."
- Dr. D. W. Fellows, Portland, Me., "A Century of Standard Dental Writings."
- Dr. B. Holly Smith, Baltimore, Md., "Operative Dentistry."
- Prof. George B. Snow, Buffalo, N. Y. (To be announced.)
- Dr. W. H. K. Mower, Little Falls, Minn. (To be announced.)
- Dr. D. R. Stubblefield, Nashville, Tenn., "Nomenclature."
- Dr. S. H. Guilford, Philadelphia, "The Nomenclature of Orthodontia."

DR. HOWARD E. ROBERTS, *Chairman*,

Philadelphia, Pa.

DR. C. S. BUTLER, *Secretary*,

Buffalo, N. Y.

CLINIC SECTION OF THE NATIONAL DENTAL ASSOCIATION.

The work of the Clinic Section is progressing most favorably. Everything, at present, indicates that the operative clinic will be the largest that the National Dental Association has ever held. There will be forty operators for both mornings upon which the clinics will be held. The territory from Maine to Utah and from Minnesota to Texas has been very fully covered and men from almost all of the States in the section named, have signified their willingness to be present and operate. The majority of the men of the G. V. Black Dental Club will be present and will operate upon both days. Such well-known northwestern men as Doctors Searl, Lewis, Clack, Konzett, Beemer, G. D. Moyer, W. H. K. Moyer, W. D. James, F. S. James, Gallagher, Carlson, Fawcett, etc., will once more operate in a body, as was done at the International Dental Congress.

Dr. T. W. Brophy, of Chicago, has kindly consented to assist and will make a surgical operation. Doctor Brophy's clinics are of such a high order that those interested are certain of seeing something which they will not soon forget.

The well-known Dr. M. E. Smith, of Lynn, Mass., will also make a surgical operation.

Somnoform and Narcotile will be very fully demonstrated.

A large number of gentlemen will give table clinics.

At the present writing, I feel confident in saying that the best men in the profession will operate at Buffalo on July 26-27. A full report has not been received from the men on the Committee, but sufficient data are before me upon which to base the opinion above expressed.

N. Y. Life Bldg., St. Paul, Minn.

E. K. WEDELSTAEDT, *Secretary Clinic Section.*

LEWIS AND CLARK DENTAL CONGRESS.

From the indications up to the present time, and the class of men who are to take part on our program, which is already largely formed, we are sure that this is to be a meeting of unusual size and interest, and that, for these reasons, it will closely approach the International Dental Congress held in St. Louis last year.

We wish that you would call particular attention in the next issue of the magazine, to the fact that in addition to the round-trip rates which have been quoted heretofore, of \$56.00 from Chicago, and \$45.00 from Missouri River points, there has been an *additional reduction* made in the fares *east of Chicago*, so that the present rate from points on the Atlantic Coast to the Pacific Coast and return, are *less than one-half* of the regular fare. This new reduction in rates should have a marked effect upon the attendance at the Congress by men of the Atlantic and eastern States, and, for this reason we wish that you would call particular atten-

tion to it. Please publish also that these round-trip tickets, as stated in former letters, are good for ninety days for the round trip and allow choice of any routes from and returning to starting point.

I call your attention to the following brief history of the Congress up to the present time, and request that you publish it in full in the next issue.

HISTORY.

The Lewis and Clark Dental Congress to be held in Portland, Oregon, July 17, 18, 19, 20, of this year, is organized by having a general committee composed of representatives from the State and local societies of Oregon, Washington, California, Montana, Idaho, Utah, Nevada, and the provinces of British Columbia.

The congress originated with the State societies of Oregon and Washington, which appointed their representatives for this general committee at their last annual meetings respectively. At the close of the Oregon meeting held in 1904, the joint representatives from that State and from Washington met in Portland and formed a temporary organization of the general committee, designating the time and place for the meeting and electing Dr. Norris R. Cox, chairman, and Dr. Arthur W. Chance, secretary, both of Portland.

At this meeting, it was ordered that correspondence be entered into with the societies of other States in the territory embraced in the scope of the Lewis and Clark Centennial, to determine if the holding of the Congress in Portland would meet with their approval and co-operation. As a result of this correspondence, the general committee as now composed was formed, and a meeting of the entire committee was held on December 29th, 1904, when permanent organization was perfected, by-laws adopted, an executive committee of five elected, and the officers of the temporary organization were made the permanent officers of the committee.

The authority of officers and committees will terminate at the convening of the Congress and will be replaced by a president, as many vice-presidents as may be determined by the members, a secretary and a treasurer, who will be elected at the opening session of the Congress, and will constitute its permanent officers.

In the by-laws power was given the executive committee to make appointments of all subordinate committees. At the meeting held on December 29th, there was appointed a committee on clinics, one on essays, and one on exhibits. The committee on clinics being selected at the suggestion and with the advice of the general committee from all the States embraced in the Congress at that time.

In the by-laws the membership fee was fixed at \$5.00, and memberships were limited to no locality, but were open to dentists throughout the world. Memberships in the Congress, for each State, are left entirely in the hands of a general committee of that State. For those living in the States east of the ones represented on the general committee, and those living in foreign countries, there have been appointed membership committees in many other States in the Union, who will receive applications.

The various committees have been working energetically, each in its different line, and the local committee of arrangements has secured the Armory of the Oregon National Guard, as a meeting place for the Congress. In this building will be held the meeting of the American Medical Association, which holds its annual session in Portland the week preceding that of the Lewis and Clark Dental Congress. The building will be fitted up with every accommodation for clinics, exhibits and essays, namely: electric wiring, gas, water, tables for demonstrators, chairs, electric engines, and other conveniences. The exhibit and clinic hall in this building will have an area of 20,000 square feet. The hall for business meetings, and the reading of essays and discussions, will seat between 1,000 and 1,500 people; is well lighted and conveniently arranged for the use of a lantern in illustrating papers.

The committee on essays has secured a large number of valuable and original papers, some of which will be given by men of international reputation. This part of the program will be highly instructive and interesting.

The committee on clinics has already secured, from all parts of the United States, clinics by seventy-five operators, and there is no question that by the time of the opening of the Congress the number of clinics will be increased to 150 or 200.

The committee on exhibits has secured the co-operation of the leading manufacturers of dental goods in the United States, most of whom have definitely signed contracts to exhibit at the Congress. The manufacturers will have, in addition to their exhibits, demonstrators of repute to exploit their various new appliances and methods of practice.

Memberships in the Congress are being taken rapidly, especially in the territory west of the Rocky Mountains; while interest in the Congress among men of eastern States is by no means small. It is confidently believed that there will be in attendance at the Lewis and Clark Dental Congress a membership of at least 1,000. All who join the Congress, and pay the membership fee, will be entitled to a bound copy of the proceedings which will be mailed to them free of cost.

The program up to April 15th, includes the following for essays:

Burton Lee Thorpe.....	St. Louis, Mo.
Julius Endleman	Philadelphia, Pa.
J. C. Hennessy.....	Reno, Nev.
Ray D. Robinson.....	Los Angeles, Cal.
William Bebb.....	Los Angeles, Cal.
H. J. Judurz.....	New York City, N. Y.
M. L. Rheim.....	New York City, N. Y.
C. V. Vignes.....	New Orleans, La.
C. L. Goddard	
John S. Marshall, U. S. Army.....	Presidio, Cal.
C. N. Thompson.....	Chicago, Ill.
Eugene S. Talbot.....	Chicago, Ill.
Crittenden Van Wyck.....	Oakland, Cal.
Clyde Payne.....	San Francisco, Cal.
G. V. I. Brown.....	Milwaukee, Wis.

C. N. Johnson.....	Chicago, Ill.
B. S. Scott.....	Tacoma, Wash.
Dr. Meyer.....	Tacoma, Wash.

The following for clinics:

C. N. Johnson.....	Chicago, Ill.
Crittenden Van Wyck.....	San Francisco, Cal.
C. N. Thompson.....	Chicago, Ill.
G. W. Schwartz.....	Chicago, Ill.
C. L. Rose.....	Fargo, N. D.
J. H. Merritt.....	Oakland, Cal.
A. H. MaGee.....	Louisiana, Mo.
W. V.-B. Ames.....	Chicago, Ill.
M. L. Rhein.....	New York City
Lelan O. Green.....	Chicago, Ill.
Porcelain Club (7 in number).....	Los Angeles, Cal.
Portland Porcelain Club (6 in number).....	Portland, Ore.
J. L. Pease.....	Oakland, Cal.
G. A. Rawlins.....	Bismark, N. D.
John Marshall, U. S. Army.....	Presidio, Cal.
J. J. McLaughlin.....	North Adams, Mass.
E. R. Tait.....	Oakland, Cal.
J. W. Nebett.....	Presidio, Cal.
G. E. Longeway.....	Great Falls, Mont.
E. B. Edgers.....	Seattle, Wash.
H C Miller.....	Portland, Ore.
L. P. Haskell.....	Chicago, Ill.
F. W. Hergert.....	Seattle, Wash.
O. J. Smith.....	St. Louis, Mo.
C. A. Louthwell.....	Boise, Idaho.
G. N. Wasser.....	Cleveland, O.
R. B. Gentle.....	New York City
V. H. Frederich.....	St. Louis, Mo.
Russel Hill.....	Hamilton, Mo.
W. F. Lawerenz.....	St. Louis, Mo.
E. W. Dodez.....	Fort Wayne, Ind.
G. V. I. Brown.....	Milwaukee, Wis.
P. M. Wullemin.....	San Francisco, Cal.
E. B. Reynolds.....	Seattle, Wash.
J. S. Engs.....	Oakland, Cal.
A. J. Holmes.....	New Westminster, B. C.
J. S. Balbridge.....	Wooley, Mass.
Alice M. Stees.....	Boston, Mass.
H. J. Smith.....	Genesee, Idaho.
H. W. Bates.....	Denver, Colo.
R. D. Robinson.....	Los Angeles, Cal.
F. L. Platt.....	San Francisco, Cal.
W. J. Hacking.....	New Westminster, B. C.
G. A. Logue.....	New Orleans, La.

M. E. Grosman.....	Honolulu, H. I.
William Finn.....	Cedar Rapids, Ia.
T. K. Ledyard.....	San Jose, Cal.

The exhibits are partially represented as follows:

S. S. White Dental Mfg. Co.,	Kress & Owen Co.,
Riter Dental Mfg. Co.,	E. DeTrey & Son,
Gideon Sibley,	Harvard Dental Mfg. Co.,
Klewe & Co.,	A. C. Clark & Co.,
J. W. Edwards Co.,	J. M. Née & Co.,
W. V.-B. Ames,	Dentists' Supply Co.,
J. W. Ivory,	Cleveland Dental Mfg. Co.
Detroit Dental Mfg. Co.,	Electro-Dental Mfg. Co.,
Dr. X. Dodel,	Horlick's Malted Milk Co.,
Edw. Rowan,	Oakland Chemical Co.,
Keasby & Mattison Co.,	J. T. Milliken Co.,
Hensy Dental Specialty Co.,	Hall & Ruckel,
The American Cabinet Co.,	Victor Mfg. Co.,
Ransom & Randolph Co.,	Boston Pharmacal Co.,
Lambert Pharmacal Co.,	Velvo Dental Specialty Co.
Armour & Co.,	

COMMITTEE ON CLINICAL CONFERENCE OF THE NEW JERSEY STATE DENTAL SOCIETY.

The New Jersey State Society extends this special request to any member of the profession having an abnormal or difficult case, to present the same at the session of the Society, to be held in the Auditorium, Asbury Park, New Jersey, July 21st, 1905, at 3 p. m.

Cases may be presented either by a clinic, or before gentlemen from whom advice may be gained toward successful treatment.

It is hoped that the younger members of the profession will accept this as a special call to them and not refrain from presenting any perplexing cases upon which assistance is desired.

The chairman requests notice as soon as possible of the cases to be presented.

J. G. HALSEY, *Chairman.*

Swedesboro, N. J.



AFTERMATH

PERSONAL AND MISCELLANY.

Fake Dentists to Be Removed.—The State Dental Board is endeavoring to chase the fake dentists outside the limits of West Virginia.

Fire.—Dr. J. A. Cotton's office of Bosworth, Mo., was destroyed by fire June 2d. The fire was incendiary and the building was partly covered by insurance.

Dentists Scarce in Great Britain.—There are not enough qualified dentists in Great Britain to meet the demand, is the assertion of a London medical journal.

Removal.—Dr. Hart J. Goslee, of Chicago, announces the removal of his office from Ashland Boulevard and Madison Street to suite 1010, Stewart Building, 92 State Street.

Dentist Honored.—Dr. C. L. Snyder of Freeport, Ill., was elected State treasurer of the Illinois Elks' Association at the State convention that was held at Moline May 23d.

Dental Examiners Appointed.—Announcement has been made of the appointment of Dr. E. H. Ball of Tama, Ia., to be dental examiner. He will succeed Dr. F. A. Lewis of Ottumwa.

Dentist Goes Insane.—Dr. Thomas W. Blanton, a dentist of Cleveland, Ohio, who formerly lived in Conneaut, was recently taken insane from grief over the death of a brother.

Reappointed Dental Examiner.—Dr. J. M. Meyer of Tacoma, Wash., was reappointed as a member of the State Board of Dental Examiners. Doctor Meyer is the present chairman of the board.

Anesthetic Causes Woman's Death.—Mrs. Myron Gill of Schoolcraft, Mich., collapsed May 26th in a dentist's chair while under the influence of chloroform, after eight teeth had been extracted.

New Member on Tennessee Dental Board.—Governor Cox of Tennessee has appointed Dr. B. B. Brabson of Knoxville to succeed Doctor Cook of Chattanooga on the State Board of Dental Examiners.

Died.—Dr. D. McWhite of Hampton, Pa., died May 23d, age 65 years. Dr. W. W. Pafford of Idabell, Tex., died May 20th of hydrophobia. He was bitten last July by a mad dog in Nashville, Tenn.

Died in Dentist's Chair.—Thomas Hays, aged 32, of Lovettsville, Va., died in a dentist's chair May 24th, while under the influence of chloroform. He collapsed after the sixteenth tooth had been extracted.

Dentist Finds Ball Embedded in Jaw Bone.—While working on the teeth of a civil war veteran named Reese, at Ottawa, Kan., a dentist found a one-ounce minie ball imbedded in the jaw bone. Reese was shot in battle in 1864.

A Mastodon Tooth Found.—Prof. F. L. Bennett of Kingston, Ill., has on exhibition a mastodon tooth, found by Mr. Bennett's father-in-law of West Chicago. It is about five inches in length and three inches wide and is one of the upper jaw teeth.

Illinois State Dental Society.—The Dental Society chose Springfield for its next session and elected the following officers: President, S. F. Duncan, Joliet; first vice-president, L. W. Skidmore, Moline; secretary, Elgin Mawhinney, Chicago; treasurer, C. P. Prunyn, Chicago.

Texas State Dental Society.—The Texas State Dental Association elected the following officers May 20th at Austin: President, Dr. Pitt S. Turner, Belton; first vice-president, Dr. W. R. Rathbone, Cuero; second vice-president, Dr. R. D. Griffis, Paris; secretary-treasurer, Dr. Bush Jones, Dallas.

Ohio Dental Board Reappointed.—Governor Herrick has announced the reappointment of all the members of the State Board of Dental Examiners as follows: H. C. Brown, Columbus; J. K. Douglass, Sandusky; L. L. Barber, Toledo; Henry Barnes, Cleveland, and Stanley Smith, Cincinnati.

Washington Dental Board Meeting.—The session of the Washington State Board of Dental Examiners closed May 27th. Twenty applicants successfully passed the examination. Before adjournment the following officers were elected for the ensuing year: Dr. W. A. Fishburn, president; Dr. C. S. Irwin, secretary.

Atlanta Dentists Form Dental Society.—At a meeting of the dentists May 25th, the Atlanta Society of Dentistry was organized and the following officers elected: W. M. Zirkle, president; Dr. M. D. Huff, vice-president; Dr. J. H. Lorenz, secretary; Dr. DeLos Hill, treasurer, and Dr. Oscar L. Rudisil, librarian.

Chinese Woman Graduated in Dentistry.—Among the graduates of the Dental Department of the College of Physicians and Surgeons, San Francisco, Cal., was Miss Faith Sai So Leong, a Chinese lady. She enjoys the unique position of being the only Chinese woman entitled to practice dentistry in this country.

Soldiers Will Not Have Artificial Teeth.—The British army council decided to discontinue the experiment of providing recruits with artificial teeth. The soldiers would not pay for their teeth, as agreed, out of their pay of 25c a day, and when the military authorities tried to make them, they deserted, teeth and all.

All But One Passed Georgia State Dental Examination.—The State Board of Dental Examiners of Georgia closed the session May 6th. There were 84 applicants for license to practice dentistry, and with one exception all passed a successful examination. There were four negroes in the class, and it was one of this number who failed to qualify.

A \$1,000 Fund for Research in Dentistry.—Dr. William Jarvie of Brooklyn, N. Y., at the recent session of the New York State Dental Society, of which he was president, offered \$1,000 as a fund for the purchase of gold medals for original research in dentistry. The fund, when established, is to be known as the "William Jarvie Fellowship Gold Medal Fund."

Dental Board Organizes.—At a meeting at Cheyenne, Wyo., May 29th, the State Board of Dental Examiners elected the following officers: William Freckelton of Sheridan, president; Peter Appel of Cheyenne, secretary, and W. C. Cunningham of Evanston, treasurer. All applicants desiring to practice dentistry in Wyoming should communicate with the secretary.

Chicago Dentist Lectures Abroad.—Dr. John N. Sandblom, president of the Scandinavian-American Dental Society of Chicago, started for Europe May 14th, where he will give a course of lectures and demonstrations in advanced dentistry in each of the three Scandinavian capitals. The Scandinavian Dental Society gave a luncheon in his honor previous to his departure.

Wisconsin Dentists Elect Officers.—At the annual meeting of the Southern Wisconsin Dental Association, at Racine, the following officers were elected: President, J. J. Wright, Milwaukee; first vice-president, C. F. Rodolf, Muscoda, Wis.; second vice-president, Dr. T. Heidbrink, Union Grove; secretary, C. W. Colver, Clinton, Wis.; and treasurer, W. G. Hales, Mineral Point.

New Hampshire Dental Society.—At the annual meeting of the New Hampshire Dental Society May 10th, at Manchester, the following officers were elected: Dr. William A. Young of Concord, president; Dr. J. F. Staples of Portsmouth, vice-president; Dr. Fred F. Fisher of Manchester, secretary; Dr. J. P. Worthen of Concord and Dr. E. P. Shaw of Claremont, executive committee.

Burglaries.—A stranger entered the office of Dr. Wm. Pilcher of Petersburg, Va., May 7th, apparently suffering with toothache. He walked rapidly around the room, finally leaving before the doctor was able to see him. After he was gone it was discovered that a

quantity of gold was missing. The office of Dr. Moylan Fields of the same vicinity was also robbed of gold by a stranger a few days later.

Married.—Dr. C. W. Powers of Dubuque, Ia., was married April 26th to Miss Jane Glass of Philadelphia. Dr. M. M. Trainer of Sibley, Ia., was married May 5th to Miss Viola Jones of Oakland, Ind. Dr. W. F. Rimes, formerly of Kenosha, Wis., now of Chicago, was married May 10th to Miss Flora Thorne of Englewood, Wis. Dr. Nile J. Hoover of Woodbury, Tenn., was married to Miss Vergie Allman May 10th.

New Occupation.—Dr. P. E. Hall, a retired dentist of Ashtabula, Ohio, has been busy making machinery for use in an electro-plating establishment, which is equipped for doing silver, gold or nickel plating in any line desired. Doctor Hall has made every part of the machinery with his own hands and nothing is lacking to make the outfit complete. He intends making a special business of his new departure.

Cocaine Fiends Beg Drug from Dentists.—Elyria, Ohio, dentists are not infrequently sought out by some wild-eyed, haggard-faced fiend who makes a piteous appeal for cocaine. "They know the dentists have it and think we do not know as much about the effect of the drug as a physician, and so they come in and beg for small amounts some times in a most pitiful manner for cocaine," said an Elyria dentist, "but notwithstanding the piteous appeal, it is not given them."

Dental Officers Elected.—At the close of the annual meeting of the Arkansas Dental Association May 23d, the following officers were elected for the ensuing year: President, A. L. Pendergrass, Helena; first vice-president, R. W. Quarles, Van Buren; second vice-president, T. Y. Cooper, Little Rock; secretary and treasurer, Henry P. Hopkins, Argenta; corresponding secretary, J. C. Settles, Arkadelphia; state board of examiners, Charles Richardson, Fayetteville; C. C. Sims, Dardanelle; C. G. Farrow, Little Rock; Ed. Lawson, Camden; A. T. McMillin, Little Rock.

Dental Office Changes.—Dr. R. M. Van Duzer of Bangor, N. Y., has sold his dental practice to Doctor Cole of Pontiac, who took possession on the 20th. Dr. Lathrop of Toledo, Ia., has sold his practice to Dr. Leslie Lupton of Fraer, Ia. Dr. F. J. Ruggles of Nevado, Ia., has sold his office to Dr. E. J. Rohrer, who has taken possession. Dr. C. L. Baird of South Whitley, O., has, on account of ill health, sold his office to Dr. T. Earl Conger of Monticello, Ind. Dr. R. D. McCully of Golden-gale, Wash., has given up his office and accepted the appointment of chief-deputy marshal under the new United States marshal. Dr. J. T. Lennington has moved from Urbana, Ill., to Champaign.

Minnesota State Dental Society.—The Minnesota State Dental Association at its closing session June 3, elected the following officers:

President, J. F. McCrea, Minneapolis; vice-president, W. A. Demo, Blue Earth City; secretary, F. E. Cobb, Minneapolis; treasurer, H. M. Reid, Minneapolis. Dr. R. W. Berthel of St. Paul declined an election as president by acclamation. The following were recommended to the governor for appointment on the state board, two being nominated for each vacancy: J. W. Penberthy and J. F. McCrea, Minneapolis; F. H. Horton and A. B. Allen, St. Paul; F. S. James, Winona, and E. E. Smith, Lanesboro. The next meeting will be held in Minneapolis.

Consul Worman Complimented.—The following complimentary resolution was passed by the Institute of Dental Pedagogics on motion of Dr. Hart J. Goslee: "Whereas, Mr. James H. Worman, American Consul at Munich, Bavaria, having worked long and faithfully to place the reputable dental institutions of the United States in the position to which their merits entitle them, and to discredit the institutions which are not worthy of recognition, we desire to express to him our sincere appreciation of his efforts. Resolved, That the institute of Dental Pedagogics hereby most heartily thank Mr. Worman for the untiring efforts which he has made in presenting to the authorities of Germany the true status of dental education and dental educational institutions in the United States. Be it further resolved, that a copy of these resolutions be forwarded to Mr. Worman."—Items.

Missouri State Dental Society Officers.—At the fortieth annual meeting of the Missouri State Dental Association, held in St. Louis May 24th to 26th, the following officers were elected: President, W. M. Carter, Sedalia; first vice-president, F. H. Achelpohl, St. Charles; second vice-president, F. G. Worthley, Kansas City; recording secretary, H. H. Sullivan, Kansas City; corresponding secretary, Sam T. Bassett, St. Louis; treasurer, J. T. Fry, Moberly; board of censors: J. C. Pasqueth, Mexico; J. L. Bridgeford, Macon; DeCoursey Lindsley, St. Louis; committee on ethics, J. B. McBride, Springfield; A. J. Prosser, St. Louis; F. M. Fulkerson, Sedalia; committee on publication, Otto J. Fruth, St. Louis; J. W. Hall, Kansas City; committee on inventions and new appliances, Ralph H. McCrum, Springfield; committee on history of Missouri State Dental Association, Burton Lee Thorpe, St. Louis. Time and place of next meeting, May, 1906, Springfield, Mo.

The Ransom & Randolph Company's First Post-Graduate Porcelain Course.—It is a little unusual for a dental house to assume the role of an educational institution, but we can see no reason why any sort of a reasonable demand should not be supplied by a dental house to dentists, provided it is supplied in the right way.

The recent departure from the usual buying and selling of dental merchandise by The Ransom & Randolph Company in the way of a Post-Graduate Porcelain Course, has supplied a demand and supplied it in a satisfactory and gratifying way, as evidenced by the testimony of the twenty "graduates" who completed the course May 20th.

Porcelain in dentistry is no longer in the experimental stage. It is being used every day more and more extensively by the very best men in the profession, but it has not been generally adopted.

One of the reasons why porcelain inlay and crown and bridge-work has not sprung into universal use is that the mere purchase of an outfit is not all that is required for success. The novice can no more succeed in porcelain work without instruction and study than he could have been successful in inserting gold fillings independent of all teaching.

Because no opportunity has presented itself by which the practicing dentist could quickly and economically study this interesting line of work, its study has been postponed by many. The Ransom & Randolph Company has furnished the opportunity.

A large, airy and light room was devoted to the purpose. This room was equipped with all necessary appurtenances, including chairs, engines, benches, and everything needed.

Dr. J. Q. Byram of the Indiana Dental College conducted the course and proved himself a tireless enthusiastic worker and a born teacher.

By close attention to work nine days proved sufficient for the work laid out in advance, but during these nine working days social pleasures could not be crowded out. The return to college ideas with a teacher and note books and desks made the man the boy once more, and when twenty boys are gathered together there is generally something to do in school and out.

We understand another class of twenty is forming for a course beginning July 13th.

The following dentists completed the course with credit: Dr. H. Anthony, Hillsdale, Mich.; Dr. G. H. Brown, Port Huron, Mich.; Dr. G. N. Finch, Owosso, Mich.; Dr. H. G. Husted, Oberlin, Ohio; Dr. B. W. Jones, Troy, Ohio; Dr. O. A. Keiser, Bryan, Ohio; Dr. F. A. Kotts, Toledo, Ohio; Dr. W. H. Merritt, Norwalk, Ohio; Dr. W. E. Moore, Saginaw, Mich.; Dr. J. H. Neeley, Paulding, Ohio; Dr. F. M. Preston, Johnstown, Ohio; Dr. S. D. Ruggles, Portsmouth, Ohio; Dr. J. F. Spring, Pontiac, Mich.; Dr. B. S. Sutherland, Owosso, Mich.; Dr. W. H. Upjohn, Lafayette, Ind.; Dr. G. E. Wasser, Laporte, Ind.; Dr. J. G. Wherry, Elyria, Ohio; Dr. C. W. Wilson, Toledo, Ohio; Dr. G. O. Wright, Adrian, Mich.; Dr. C. W. Young, Allegan, Mich.

Patents of Interest to Dentists Recently Granted.—

787350—Shaft attachment for dental motors, Wm. B. and E. P. Alford, Sumter, S. C.

787286—Dental flask, George L. Bruce, Baltimore, Md.

787352—Artificial tooth, Colin T. Campbell, Kentville, Canada.

787584—Dental furnace, Arthur E. Matteson, Chicago, Ill.

787861—Apparatus for straightening teeth, Willard B. Shelp, St. Louis, Mo.

788398—Extracting tool, John B. Fladby, Rutland, N. D.

- 788981—Dental disk shield, Wm. F. Green, Modesto, Cal.
- 78849—Apparatus for swaging dental plates, Carl L. Nelson, Seattle, Wash.
- 787937—Operative dental instrument, Frederick L. Norton, Bath, Maine.
- 787947—Dental pliers for shaping clasps and half-collar crowns, Roderick M. Sanger, East Orange, N. J.
- 788906—Excavating bur for dentists, Willy Homann, Dusseldorf, Germany.
- 788909—Dental scraper, James W. Ivory, Philadelphia, Pa.
- 789032—Centering device for flask patterns, George W. Jones, Gate City, Ala.
- 788947—Device for removing obstructions from between the teeth, Charles F. Roth, Chicago, Ill.
- 789591—Dental appliance, Freeman Davis, Moulton, Ia.
- 789415—Dental device, Henry G. Dressel, Chicago, Ill.
- 789161—Dental electrode for medicamental diffusion, Samuel H. Linn, Rochester, N. Y.
- 789908—Dental cup, Wm. Hare, Augusta, Ill.
- 790207—Dental bracket, Gustav Holtz, Gouldsboro, Pa.
- Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.



REGULAR CONTRIBUTIONS

"PATHOLOGIC IRREGULARITIES OR MAL-OCCLUSION."*

BY M. H. FLETCHER, M. D., CINCINNATI, OHIO.

In contradistinction to cases ordinarily considered under the head of malocclusion, there is a class of irregularities not treated of in works on orthodontia, nor have they been considered under the head of dental orthodontia. In fact these cases seem in a way to be the stones which the builders disallowed.

They are in many particulars the exact opposite of the others.

First: They do not appear until the age of mature years.

Second: They are purely acquired.

Third: They are entirely pathological, in the sense that they are the result of disease, localized in the alveolar process.

Fourth: They are only amenable to mechanical treatment by first removing the causes of the disease producing them.

NAME.

In order to distinguish these from the previously described, the writer has called them *Pathologic Irregularities or Malocclusions*.

ETIOLOGY.

To describe all the causes of pathologic malocclusion, would be to give a treatise on interstitial gingivitis, known also as pyorrhoæa alveolaris and Rigg's disease.

To make the matter plain from the writer's standpoint, it will be necessary to briefly describe the anatomy, the pathology and the causes, with treatment other than mechanical.

ANATOMY.

An intimate knowledge of the anatomy is of course necessary in order to comprehend the pathology, or to apply treatment intelligently. It is presumed this is understood.

*Read before the Ohio State Dental Society, December, 1904.

Now when we consider that a hard unyielding substance like a tooth is not only supported by and held in place, but entirely dependent upon the thin bony walls of the alveolar process, it is a marvel to realize what hard usage it withstands, and what enormous pressure and lateral strain it is continuously subjected to, without displacement or injury. Let this bone become diseased, however, and ere long the teeth become tender and unusable; and vast numbers are finally lost without the least defect in the tooth itself.



Upper and lower. Case, Mrs. T., age 50 years. Showing condition teeth were in when work was commenced in 1898.

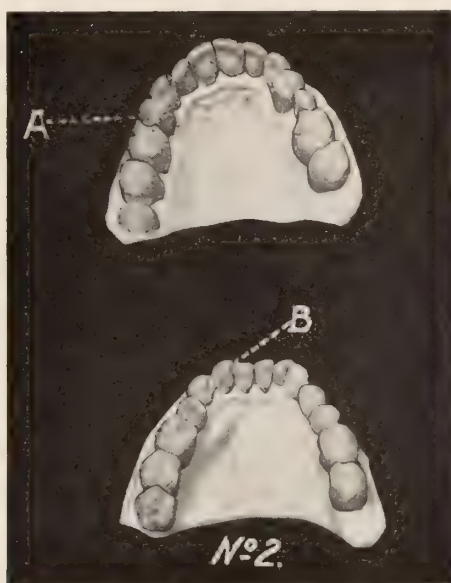
In the last decade these diseases and their treatment have engaged the attention of the profession to a marked degree, much to its credit.

TERMINOLOGY.

To Talbot is due the credit of having classified the various phases of this disease and described its different stages. He has given the name "interstitial gingivitis" to inflammation of the gums, alveolar process and peridental membrane.

The term Rigg's disease is indefinite and to today obsolete.

Pyorrhoea alveolaris now indicates a flow of pus from the sockets about the roots of the tooth and is a terminal stage of inflammatory action. It is the result of previous inflammation known as interstitial gingivitis. Inflammatory action may continue, however, and exfoliation of the teeth result without pus infection. One termination of the inflammatory action is the tendency of the teeth to be expelled from their sockets, with the result that they become elongated, tilted to one side, or pushed in or out of the normal arch.



Same case as shown in Fig. 1, but illustrating the marked improvement effected by treatment. A—Where bicuspid was extracted. B—Where root was extracted. Both places closed by bringing the remaining teeth into proper position. This work was accomplished in twelve months. It is now six years since its completion. The teeth are still in position as shown in Fig. 2. Platinum ligatures still remain on the teeth.

To give a plan of arresting this process, before it has gone too far, and to replace the teeth in their normal position is the object of this paper.

CAUSES.

In order to arrest or eradicate a disease its causes must first be found and removed.

Talbot says: "The local causes which produce interstitial gingivitis are an accumulation of tartar about the necks of the

teeth, decayed teeth producing hypertrophy of the gums, unfinished fillings, gold crowns and bridge-work, artificial dentures, rapid wedging of the teeth, collections of food, and everything that will produce irritation of the gum margin, setting up a chronic inflammation or gingivitis. This in turn extends to the deeper tissues (the periodontal membrane and alveolar process), where it becomes interstitial in character.

"The constitutional causes, which act locally, producing interstitial gingivitis, are the toxic effects of mercury, lead, brass, uric and other acids, potassium-iodid and other agencies acting in a similar manner, such as scurvy," etc.

He further says, "Auto-intoxication (meaning self-poisoning, due to faulty metabolism), is the great cause of interstitial gingivitis, resulting in pyorrhoea alveolaris."



Same case as Figs. 1 and 2, showing occlusion before and after treatment.

In contradistinction to investigators who hold that the disease is often entirely systemic, the writer's opinion is, that it must have a local cause, this cause producing a point of least resistance for the localization of systemic disorders, which general disorder, or condition of auto-intoxication, increases the local symptoms.

There seems no reason to believe that drug poisoning or other morbid systemic conditions can produce interstitial gingivitis without a lesion of the gum pre-exists. This lesion may be the merest break in the mucous membrane, caused by the smallest deposit of calcareous material, this local mechanical irritation

being one requisite of the etiologic moment. On the other hand, there may frequently be found in gingivitis the systemic disorders accompanying case of sapremia and septicemia.

The continual pressure against the gum tissues of rough irritating calcareous deposits, which continuously increase in quantity and insinuate themselves deeper and deeper beneath the soft tissues, are accompanied with all the products of repair by granulation, or second-intention, and may be accompanied with surgical fever. These deposits may be found wherever saliva can penetrate. It has never been my privilege to see deposits of tar-tar about the necks of teeth that were innoxious, but they are al-



FIG. 4.

Mrs. C., age 45 years. In this is shown another typical case before and after treatment. At A is an artificial tooth in place on heavy platinum wire, ligated to adjoining teeth with platinum thread. The heavy wire acts as a retaining appliance. This work was accomplished in five months.

ways irritating to some degree, and usually greatly so. This condition may exist in all stages, from that of being imperceptible to the naked eye up to a complete state of pyemia, and may result in death.

On the other hand there is abundant evidence to show that auto-intoxication, or a low state of health from any cause, greatly favors the progress of the disease, and with this state of affairs present a chronic pus-forming condition may soon be found about one or more of the teeth where the local exciting cause exists, but

that auto-intoxication or other systemic disorders cause this disease, without local irritation, does not appeal to the writer's reason any more than to say that the same disorders cause inflammation of the pleura or conjunctiva without a local point of least resistance from local cause.

Degeneracy or faulty development may bring the etiologic moment at a very early stage of the local irritation. This might be almost coincident with the initial lesion, whereas in normal and healthy individuals the pyorrhoeal stage, even in its mildest



These illustrate still another case. In the first model the regulating appliance is shown in position. These attachments accomplished the entire work. The second model shows the same case with regulation completed and teeth held in position by light platinum ligature. A—Shows where the banding material has been pinched together around the teeth and soldered, a hole being drilled through the lug, this made for reception of end of the bow, forming practically a ball and socket-joint. B—Shows metal ligatures. German silver was utilized in moving the teeth.

form, may be deferred indefinitely, or never appear even where calcareous deposits are excessive.

The fact that the tissues involved are transitory in nature does not seem an adequate factor in accounting for the disease, as suggested by Talbot, since they are as transitory in cases where the disease does not exist as where it does, and those tissues recover as readily as other structures which are not transitory.

There seems no question but that calcareous deposits about the teeth should be looked upon as noxious foreign bodies and that the constant effort on the part of nature to extrude them results in the progresisve death of the surrounding tissues with the malposition of the teeth as one result. We find in this disease zones of granulation tissue with the result of destructive metabolism in the soft tissues and the creation of sequestra in the bone. This condition, however, is changed to constructive metabolism the moment the tartar, sequestra or other local irritants are removed.

The sinus in the pyorrhoeal stage of this disease is between the root and alveolar process, unless the lesion be so deep in some place on the outside of the process that a gingival abscess is formed. In either event the alveolar process is continuously bathed in pus, which results in its destruction.



Shows model made last week, showing the beginning of protusion, Mrs. I., age 25 years. These cases are numerous and easily handled, as described in paper.

So long as the tartar is present as a foreign body the irritation is continuous and sequestra are formed, which are a second source of irritation until they are removed or absorbed.

All these cases will heal by removal of the deposits and sequestra, or by the loss of the affected teeth. The removal of the teeth invariably results in recovery and a patient without teeth, either young or old, cannot have the disease, regardless of transitory structures, degeneracy, heredity, drugs, environment, or systemic disease. If lesions of the gums or maxillary bones appear where there are no teeth, it is not interstitial gingivitis, but something else.

Of all the causes mentioned the writer believes that ninety per cent. of all cases of interstitial gingivitis are due to hard deposits about the teeth,

TREATMENT.

As to treatment, I believe that all authorities are agreed that absolute removal of all deposits about the necks and roots of teeth is the first requisite to recovery. In my own hands this requires from three to ten sittings, approximately a week apart, washing out the socket each time with hypodermic syringe, using fifty per cent. alcohol, saturated with boracic acid, painting the gums with iodine, or iodide and chloride of zinc. They must then have constant care thereafter, from one to six times a year, in order to preserve a good state of health, or a "healthy stump," as surgeons say.

Dr. W. A. Price of Cleveland has had good results by local treatment with X-ray after having removed the deposits.

As to instruments, each one capable of doing the work will adopt his own methods and choose his own instruments and remedies for local treatment.

If the diagnosis has been correctly made the practitioner will be the judge as to whether systemic interference be necessary. If constitutional treatment is called for, abstinence from excess of nitrogenous and acid foods, with the necessity of ten to twelve glasses of pure water daily and the addition of Lithia for a period is usually indicated.

Much can be learned about the condition of the system by examination and analysis of the saliva and urine; neither should be more than slightly acid and both should be normal in other particulars.

Talbot says, "In the severer types of disease, such as tuberculosis, asthma, chronic indigestion, kidney disease, etc., very little curative effect is to be expected from treatment. Constitutional treatment is tentative since auto-intoxication will continue in most cases until death. The chief treatment of such cases will be removal of local irritation."

MECHANICAL TREATMENT.

The causes having been determined and treatment carried well along, the malposition of the teeth should begin to have attention; this is usually begun before healing of the tissues is complete. The writer has had the most satisfactory results in these cases by straightening out their defects in the same manner that ordinary irregular teeth are treated.

A description of the mechanical devices contrived and used

for the purpose of regulating teeth would fill large volumes, yet in addition to all these the inventive powers of the operator are continuously called upon in carrying these cases to satisfactory completion.

In my own hands cumbersome regulating appliances have largely given way to a most simple plan, namely, that of a simple bow of heavy German silver wire on the outside of the dental arch, so adjusted that the teeth are drawn to it by the use of ligatures of German silver or platinum instead of silk or rubber. Torsion is produced by putting on a band to which a tube is soldered; in this tube is inserted a spring lever, the outer end of which is ligated to the bow, as shown in the model. The use of the bow on the outside of the arch is one of the oldest devices known, but the manner of its handling is varied, being susceptible of a great variety of uses.

The resiliency of the heavy bow being such that its steady pull or push moves the teeth out, or pushes them into line. Its resiliency can also be utilized to expand or contract the strongest arch. It has nearly done away with jack screws, coffin plates and many other intricate and annoying appliances where they were formerly used and simplifies the treatment to a very great degree, and has done so in my hands for the past ten or more years.

This bow and its accessory appliances being entirely on the outside of the arch are much less annoying than appliances inside, and are very much more effective. It will be found that pathologic irregularities yield to pressure more readily than in younger persons, because of the partial loss of alveolar process; then there are no short, partly erupted teeth to be dealt with.

Regarding the imaginary difficulty of changing the shape of bones in mature adults, it may be said: that live bone never becomes so old that it will not yield to continuous pressure, and teeth are more easily replaced into a former position than moved into a new one. Nevertheless two of these cases here presented show where adjoining teeth have been brought together and occupy spaces where a tooth had been extracted, or lost from disease, both in patients fifty years of age.

As to changing the shape of bones, Dr. M. H. Cryer says: "After the birth of the child muscular action and various forces have direct influence over the change of the bones, according to the following general laws: The normal application of forces in

developing bone results in the normal development of the form of the bone. The abnormal application of forces under the same circumstances results in the development of an abnormal form. Abnormal applications of forces to bone in adult life will also change and modify the shape and character."

These cases of malocclusions, like others, must be retained in their new position for a period of months, maybe years, or until the bony arch has become thoroughly ossified again. This is usually done by ligating them with platinum ligature. Sometimes a heavier platinum wire is fitted to the lingual surfaces and ligated to the teeth with the light platinum. The German silver and platinum ligature is of No. 25 B & S gauge, as shown in the engravings. These appliances may be left on permanently without inconvenience or injury.

In November, 1893, I presented one of these cases, giving this plan of treatment and read a paper on the subject before the Cincinnati Odontological Society. Since that time I have treated several additional cases with most satisfactory results, and herewith present some of them for your inspection and criticism.

DISCUSSION.

DR. C. A. HAWLEY: The term that the essayist has applied to this particular class of cases is new and a very excellent one. It brings to the mind distinctly the cause and the general condition. As he says, they have not received much attention in works on orthodontia. This is because their management is necessarily connected with the caring of the diseased condition accompanying them, the discussion of which does not pertain to orthodontia proper and their mechanical treatment is so simple and so similar to other cases as to require no special mention.

The progress that has been made in the treatment of the surrounding tissues or so-called pyorrhea alveolaris in the last few years has given considerable encouragement to the mechanical treatment of this class of irregularities. And we may also say that the restoration of proper occlusion, and use of these teeth is no small factor in the permanence of the cure of the disease for the increased use which this brings about and makes possible, promotes a healthy condition in the parts.

There is no question about the movement of the teeth; about the possibility of movement at any age, but the whole question comes in the retention. In cases that I have treated of this kind I have used a more permanent retention than those shown by the essayist—something in the way of a splint, and one of the best I think for this purpose has been presented to the profession by Doctor Todd. I expect in the majority of cases that it will be permanent; I prefer it to any method of wiring

or form of skeleton plate. These teeth will always be weak in their attachment and need additional support.

As to the selection of apparatus it seems to me that the Doctor has chosen the most simple and at the same time the most effective apparatus that can be used, not only for these cases, but for any others. The loose joint with which he attaches the bar to the molar bands may be admissible and possibly an advantage in some of these cases, but there are few others where it would do. Through the rigid tube and nut attachment we gain some of the best and most important effects with the arch bar. But there is no complicated movement in the cases he describes which requires it.

The paper should encourage us all to take more notice of these pathological irregularities. The cases can be greatly benefited and should receive attention. I wish to thank the essayist for presenting the paper before this Society and compliment him on its excellence.

DR. VARNEY E. BARNES, Cleveland: The essayist deserves commendation for the masterly way in which he has presented a subject, long neglected and worthy of our deepest consideration. The term used to designate this class of cases is an apt one and is comprehensive. It is true, that writers on orthodontia have not included these irregularities in their classifications, yet they certainly should do so; it matters not when an irregularity develops, it is still an irregularity and requires treatment. The Doctor rightly says that these cases occur in mature years, that they are of pathologic origin, that they are acquired, but I cannot agree with him in saying that they are only amenable to treatment, mechanical treatment, by first removing the producing cause. Some may be, but not all. Some cases require surgical treatment in addition to the mechanical. I refer to those conditions in which the irregularity is progressive, constantly becoming worse, and particularly where the teeth are elongated. The treatment for this type should consist in the extraction of the tooth, filling the pulp chamber and possibly amputating part of the root and reaming out the socket, then replacing the tooth and retaining it with apparatus strong enough to allow the restoration of tissue and comfort to the patient. Of course such treatment must only be resorted to when the tooth becomes a positive annoyance to the patient and after the removal of calculus and the restoration of the gum tissue to a healthy condition. The primary cause may be interstitial gingivitis, or an accidental blow causing it, but the irregularity is ultimately produced by abnormal alveolar development. After surgical treatment the retainer need only be worn until the teeth become firm. The less marked cases may be cured by the mechanical treatment, but the retention must be permanent.

The mechanical treatment is often the only thing to use, but we must remember that our patients are mature, often not in the best of health, and hence are far more susceptible to irritation from the appliances than are our little orthodontia patients. The appliances in all cases should be smooth and as unirritating as possible. For this reason I take exception to the form of band and its attachment, the arch, as presented by the essayist. The loose adjustment permits too much play on a weak support and is further a great source of irritation.

I would also call your attention to the fact that it is easier to rotate a tooth with the spring rotation bar when the tube in which the bar rests is farthest from the axis of the tooth, therefore put the tube as near to the cervix as possible. Since I have criticized the apparatus, it may be well to describe a skeleton type of apparatus that has proven efficient and comfortable to the patients. I use apparatus made in my office, so that I know what I am using. Adjustable molar bands are fitted to the first molars and to these are soldered threaded socket tubes, closed at one end and receiving long hollow threaded sleeve nuts, which hold the threadless German silver spring arches. Adjustment is made by screwing the nuts out of the socket tubes against little collars soft soldered to the arch at convenient points. Then the teeth are ligated to the arch and the necessary pressure distributed in the usual manner of regulating cases. The tubes are rounded and closed on the distal ends, thus removing a great source of irritation.

DR. J. R. CALLAHAN: I don't believe I have anything to add that would be of interest to this paper. I can't give you anything special just now, further than to call attention to the wire attachment for holding these loose teeth in place. I cannot understand the kindness of nature in tolerating the presence of such an apparatus; but I know it does in a certain degree. I know these curved wires will hold these teeth for some time; but why nature will put up with such an apparatus is more than I can comprehend at all. It will do for temporary purposes.

DR. W. A. PRICE: I have been asked by two or three to speak of the results of the treatment of pyorrhea by X-rays; and I want to say that most of the cases that were treated were a year or eighteen months ago, some dozen cases, and they are under observation very closely, and a record kept very accurately; and the results have been that those cases that responded readily to the X-rays and seemed to be apparently materially helped, almost cured, as we would say, have remained apparently cured so far. That is, there has been no opening of the pocket, and many of these pockets were actually filled in with new tissue. Before treatment we could put an instrument in some of these pockets for half an inch, and after the treatment we could not do so an eighth of an inch. The cases that were not so materially helped have tended to recurrence, and from nine months to a year in one or two cases there have been a slight recurrence of pus; but one or two treatments have checked it again. I want to congratulate the Doctor for taking up this field in dentistry, for while it is one of the most forbidding and uninviting, it is a field with great possibilities.

DR. C. A. HAWLEY: Since I was on the floor I have had a chance to examine the models of the cases. I notice that for rotation Doctor Fletcher uses a tube and spring lever. I think the rotation by ligating to the arch from a spur is far more accurate and better controlled and also less cumbersome. And for working purposes the brass ligature wire is stronger and more flexible than any other metal. Platinum of course has an advantage for retention in that it does not discolor in the mouth.

DR. M. H. FLETCHER: In answer to Doctor Hawley's questions, I would say that during the active work of straightening teeth the German silver wire is used; but I have not found anything which takes the place of platinum in the permanent appliances, or for even two or three months. Platinum does not tarnish and it is admirably adapted for the work. I have laid before you what I have done and the results, with the hope that others may take it up and get better results, with better appliances. I don't look upon the retention appliances as anything but permanent. The platinum ligatures are broken now and then, but are easily repaired. I insist upon the patient realizing that the work is only temporary unless they continue their attention to it, explaining that the same causes are always present to bring back the trouble that brought it on in the beginning. Where ravages have been made to the extent that have been shown in some of these models, and many that are worse, the trouble will continue to be rapid and need much care. I do not believe that the system can be put in such a condition that the disorder will not return without periodical local treatment; omitting treatment, the disease will progress more rapidly as age creeps on. The results obtained in straightening these teeth have been a surprise to me. As stated in the paper, the work was begun with misgiving. In fact, I was driven into it by the wife of a physician, the Doctor saying that I ought to be able to do something to straighten them out. After she had insisted several times that I do something for her, it occurred to me that I was very slow to recognize the fact that they could probably be replaced as easily as they could if she had been a child, so I began it. I believe now that these teeth always incline to return to their abnormal position. Consequently I have retained them with the platinum ligatures as being the least irritating and the best method. I have never found food under them to any degree. The tartar, however, collects on these ligatures, just as it will on the teeth. I never found a patient able to keep it off entirely. If patients cannot keep their teeth clean in the first place so they do not have pyorrhea, I don't expect them to with the appliances on, although I scold and talk and threaten and do everything that the practitioner is supposed to do.

The case that Doctor Barnes speaks of, where the tooth is removed by a blow, is a matter of surgery, as he suggests. It would hardly come under what I consider this name should cover. There has been something said about difficulty of retention of the bow in the holes of the lugs. If the bow will stay in place if it is ligated, at least in two places, say to a central or lateral which has a shoulder upon it, to prevent the wire from going up or down. The more teeth that are ligated the firmer the bow. The wire ligatures can be put on so they will hold the bow just where you want it. I find it is an advantage, in most cases, not to have the bow rigid to the band. If you have a bow through a tube, you will have a twist on the anchorage teeth. There are cases where I do use tubes, but I find that this little lug with a hole through it and a wire lug on the bow is suiting more cases in my practice every day. There is one feature that we have not mentioned, which is, that the movement of these teeth into positions seems to have a beneficial effect upon their getting well. I explain it by saying that in the movement of the teeth

there is produced a degree of inflammation, which is necessary to the movement of the teeth and the healing of the wound. I find that when one of these teeth is very loose and is moved into place it gets firmer than those that are already in place.

THE NERVE BROACH.*

BY DR. W. I. JONES, D. D. S., NELSONVILLE, OHIO.

The conspicuous sin of the dental profession is the infliction of pain, and pain is mental and physical distress. It is the bug-bear, the ogre, that has haunted the dental office from its earliest days down to the present, and although to the dental profession belongs the honor of the discovery of anesthetics, we have not so universally practiced the relief of pain as we should, and though dentistry is comparatively a modern science, we have some instruments in our dental cabinets that I feel sure can trace their genealogy back to the inquisition, so infernal is the pain they can inflict.

They leave a trail of blood behind them and strike terror to the heart of the bravest.

The chief offender, the arch criminal in the whole collection, is that diabolical little instrument, the nerve broach.

Over forty years ago Dr. Oliver Wendel Holmes, when speaking of the great boon to humanity of the discovery of anesthetics and how it had increased the stock of human happiness, said, "The knife of the surgeon is steeped in the waters of forgetfulness and the deepest furrow in the knotted brow of agony is forever smothered away."

This was not said of the dental excavator, the engine bur or the nerve broach.

The aim of this paper is to point out a way whereby the nerve broach can be rendered as innocent and harmless as an impotent man or a homeopathic pill, and make it possible for some other genius like Holmes to write as fervently of the nerve broach as did he of the surgeon's knife; and perhaps he will say, "The nerve broach has been robbed of its sting and its coming is like an angel's visit, the black ravine of despair has been driven from the breasts of suffering men and women, and the

*Read before the Ohio State Dental Society, December, 1904.

white-winged dove of peace and hope is perched upon the nerve broach."

If he be one who has suffered on the barbs of this heroic instrument his words will not be idle ones, but will spring in thankfulness from a deep-seated glow of the soul. Is there any one here who would not be glad to inspire the writing of a classic that would immortalize the nerve broach? Now I do not profess to have discovered a panacea for every pain a dental surgeon can inflict, but as painless dentistry is the great desideratum, the goal towards which we are all traveling, I desire only to accelerate our speed a little in the hope that we may arrive at that station of happiness before the human race becomes edentulous, for hope deferred maketh the heart sad.

The cases in which N²O are indicated can be briefly and quickly described by instancing a few cases that have come in my own practice and under my observation.

I was seated quietly in my office reading THE DENTAL SUMMARY when there entered a woman enveloped in grief that might have portrayed the death of a mother. She was suffering from a severe pain upon the left side of her face and had spent sleepless nights in a vain endeavor to find relief by the aid of household remedies and the family physician, but all to no avail. Upon examination I found that the superior left cuspid, to which was attached a bridge, was extremely sore to percussion, indicating an inflamed periosteum and an advanced stage of pulpitis. She was also pregnant. Here was an accumulation of woes that had brought her to the very verge of nervous prostration, but I assured her that she would suffer no pain. This is an important first step: go about your business as though you understood it fully and completely and thus compel your patients to have faith in your promises; this will render the giving of an anesthetic an easy matter. Nitrous oxide was administered, then with a sharp bur, rapidly revolving, the pulp chamber was opened into and the pulp extirpated in less time than it takes to tell it. The patient awoke, transformed from a state of nervous terror into a tranquility of mind and at peace with all mankind.

The next case was that of a farmer who, while suffering from violent toothache, had gone to a country physician during the night to have the tooth extracted; when he arrived at my office I found the superior left second bicuspid had been broken off

flush with the gum, leaving the pulp exposed and protruding from the root fully an eighth of an inch. It is unnecessary, gentlemen, to tell you how painful this would be and how next to impossible it would be to make a local application, either for the purpose of obtunding the pulp or devitalization. Gas was administered, the nerve extracted, and at the same sitting a banded Logan crowd attached to the stump, which gives promise of serving the owner many years.

The next case is one I observed in the office of a brother dentist, whither I had gone to secure a clinic for this meeting. However, I did not secure the clinic and the Doctor is not at this meeting, so I believe I am speaking discreetly when I relate this case.

The Doctor had been called to his office late in the afternoon by a patient whose teeth he had treated the day before. When I entered I was attracted by the unusual actions of the patient, who was seated in the operating chair with his hands over his knees rocking backwards and forwards on his gluteus maximus as though in intense agony. The dentist stood at his right side vainly endeavoring to pacify him, while on his left stood a physician with a hypodermic syringe in his hand, occasionally injecting morphine into the arm of the patient. However, the efforts of the physician and dentist seemed unavailing and the patient left the office in great pain. Gentlemen, how my fingers itched to lay hold on that suffering man and bring him relief that would be speedy and sure.

In this case an application of arsenic had been made to the pulp and was producing the death of that member by congestion. In cases like this the pain is intense. If the pulp had only been opened up with a sharp bur while the patient was under the influence of nitrous oxide there would have been absolutely no pain and relief would have been instantaneous and permanent.

If it seems advisable to the dentist in cases like this not to make use of the nerve broach at the same sitting, a second application of arsenic may be made and there will be no recurring pain.

Just such pain-producing, nerve-racking operations as this are occurring every day in dental offices all over the land, calling down upon our profession the anathema of a persecuted people. The like is uncalled for in the light of our present

knowledge when we have cataphoresis, pressure anesthesia, nitrous oxide, chloroform, ether, etc.

DISCUSSION.

DR. H. J. BOSART: The line on which the subject was handled is one intensely interesting and in many cases has advantages over any other method of removing the pulp, painless of which I know.

Now, for instance, the advantage over pressure anesthesia I wish to dwell upon is the fact that many patients come in with a small amount of softened dentine covering the pulp, and unless you get that removed and the pulp opened thoroughly you will not get good results with pressure anesthesia. To thoroughly open, you all know, causes pain, the very thing we wish to overcome.

This method advocated by Doctor Jones—in those cases we get very satisfactory results whenever nitrous oxide can be used.

I never use nitrous oxide, much prefer chloroform and ether as a general anesthetic. I have a few times used chloroform and ether instead of gas, as Doctor Jones advocates; then with a round bur cut through the softened dentine into the pulp, removing it with a broach while the patient was under the anesthetic.

This method is very satisfactory provided you have not a septic pulp with which to deal. The danger of pushing a bit of the contents through the apical foramen and producing foramentitis is just as great as with pressure anesthesia.

If some of you go home and try this method with a septic pulp instead of having a perfect result and a grateful patient as Doctor Jones always has, you will likely have something else.

Right here let me say, first sterilize if the pulp is in a septic condition.

In the old method, devitalizing with arsenic and the treatments following its application, we get sterilization of the pulp contents to a certain extent, which obviated this danger and made us thoughtless of the danger in infecting the apical space when we first begin using newer methods.

DR. J. R. CALLAHAN: I will say that the method that the Doctor advocates in the use of nitrous oxide gas for the purpose mentioned, strikes me as one that has been neglected. The pressure anesthesia for the removal of the pulp is of course a great thing. It has a known procedure, and I would be very glad to use it on the other fellow, but I never care to use it upon myself, because there is a good deal of pain in approaching the pulp. Only once in a while can we get near enough to use the pressure without causing pain. About four to ten inhalations of nitrous oxide gas will usually put the pulp in condition so that you can excavate the cavity without pain, and I believe without any serious danger, and I don't see why we don't use more of it in that direction.

DR. C. R. BUTLER: I don't wonder that the essayist sets forth the barbarous character of the nerve broach that is presented to us by the

manufacturers; that is, the broach on the market. I may be an old foggy, I may not be anywhere up-to-date, but one thing sure, and I can say without qualification, I never use a barbed broach to take out a pulp. In my opinion the broaches made are not fit for the purpose at all. Instead of going up where you want to remove the pulp, whether it has been anesthetized or otherwise, the barbs are just the thing you don't want, and I don't wonder they kink up and do just what you don't want. They are barbarous. If any of you would try a smooth broach made from, well, we will say from piano-wire if you please, and file it down so it is small enough and file it three sided if you like, small enough to go into the pulp canal, you can carry it up so that you can remove your pulp and do it quickly and without any of that forcing the tissue up and defeating your efforts. It does not want to be mounted in a handle or anything; but just turn a ring in the end of it so that you can just hold it, and it is quite efficient and works better than any particular broach that is made by manufacturers who do not know anything about using them.

DR. J. R. BELL: I cannot let the opportunity go without saying a word with reference to Doctor Jones' paper. If I understand the Doctor correctly, he spoke of the painful congestion following the application of arsenious acid, and afterwards talked on the use of arsenic for extirpating a pulp. I am very sorry to have heard anything about arsenic here to-day. I supposed arsenic was settled upon as a condemned remedy in the dental practice long since, and I am surprised that it should be spoken of in connection with the extirpation of the pulp. If the gentleman does not know what pain is, let him apply arsenic to an exposed pulp in his own case and then describe the pain that follows.

DOCTOR RAMALEY: Doctor Jones spoke about using the broach painlessly without the use of anesthetics. Doctor Butler says there is a great deal in the kind of a broach used and the method of using it. I don't quite agree with Doctor Butler that the broaches are not what they should be. It seems to me that in many cases they answer the purpose very well, but there are precautions that must be taken. In the first place, when the broach comes to us, its barbs are all cut so that they slope to the end, and as they are passed into the cavity and the broach used carefully they can thus be moved up and engage the pulp. Consequently care should be taken in passing up the broach to see that it is small enough and that the barbs are bent in in that direction. In withdrawing, some of these barbs will be turned upwards so that if an attempt is made to use the broach the second time without any change upon it, those barbs will catch down the nerve tissue and force it up in spite of all we can do. By using a file cleaner and working backward, those barbs can be bent back and then be used a second time without much pain. Then the matter that is spoken of by Doctor Bell, the use of arsenical preparations. I must say I cannot get along without an arsenic preparation in my office for devitalizing the pulp. I have used it in many cases, and there are many cases where I do not; but I want to say this, if pain is due to arsenic preparations that is the fault of the dentist and not the fault of

the arsenic preparation. It can be placed in the tooth and the tooth made perfectly comfortable if the proper conditions are arranged for beforehand. Arsenic should not be applied upon a pulp that is inflamed without first doing something to allay that inflammation, but neither can you use your anesthetic without some previous preparation. If it has done so for you it has not done so for me, and in consequence, and that some of the members may not feel lonesome, I will say that I use arsenic sometimes, but the nerve broach especially I think should receive more attention than it does by the majority of the dentists.

DR. W. G. EBERSOLE: As I understand the paper, the principal idea was to bring out the pain-preventing question. It was not the nerve broach in itself, the manner of its making, but the method of using it which would prevent that which all men abhor, that is—pain. Now the Doctor takes up in his paper nitrous oxide as one of the means whereby we can use this instrument of torture, the nerve broach, without inflicting pain. He has simply touched upon one of the methods that can be used to take away pain. He may use the pressure anesthesia by the various instruments that are made by the different manufacturers. He may use what is called the Funch system, I believe, cocain and vulcanized rubber. He can use nitrous oxide; any of those methods can be used and used successfully and for the benefit not only of the patient, but of the operator as well. If I am not mistaken I think that the principal idea in presenting that paper was to take up the pain preventing side of the question. Now I am a crank on that question, as most of you know, and I want to see that side of the question brought up.

DR. HENRY BARNES: Twice I purchased complete outfits for the administration of nitrous oxide gas, but my experience was so discouraging, having had several very unpleasant cases, that I finally gave up its use. Every dentist is not competent to administer gas and it should not be given indiscriminately.

I cannot agree with the Doctor as to the use of arsenious acid. There are not more than one per cent. of cases that in my judgment demand its use. We have in pressure anesthesia a very good substitute and one which leaves no serious after results.

A recent trying case and its treatment may not be out of place at this time. A lady called to have a temporary filling placed in a lower left first molar. After so filling she departed, and while shopping was attacked with a violent paroxysm of pain in this tooth, so violent that she somewhat frightened the clerks in attendance. After gaining speech she said, "I have not a fit, but it is toothache." Returning to the office at about one o'clock I removed the filling, cleansed the cavity of decay and found an exposed pulp, applied cocain and adrenalin chloride with only slight cessation of sensitiveness. Not having time to devote to the case I again applied the solution, using kneaded rubber with a plug of gutta-percha in the center, upon which I directed her to bite, with a pumping motion, while I proceeded with my operation. This was repeated about four times, until at four o'clock, when I could give it attention, the pulp was found to be quite asleep and removed without pain.

This case is interesting from the fact that the first right lower molar had refused to respond to any treatment for its destruction, although this had not been tried.

DOCTOR JONES: Doctor Ebersole caught the meaning of my paper. My object in writing it was to protest against the barbarous method of using the nerve broach. I care not what kind of an instrument you use to extirpate the nerve, whether it be made from piano-wire or baled-hay wire.

Now as to the use of arsenic: I use it constantly and have not found it to be the abomination before the Lord and suffering humanity it is represented to be.

What I protest against, gentlemen, is pain, and it is unnecessary in this age.

We can do our work without one-tenth of the pain we inflict if we know how to go about it.

Why, those patients Doctor Barnes has just described are no trouble to me any more. I like to see them come, it is such a pleasure to send them away "wearing the smile that won't come off."

DEVITALIZATION IN CROWN AND BRIDGE-WORK.*

BY ALDEN BUSH, D. D. S., COLUMBUS, OHIO.

Instructor in Crown and Bridge-Work and Metallurgy, Ohio Medical University.

It is not the object of this paper to set forth any claim to originality for what appears herein, but simply to present to the members of this society in as comprehensive a manner as possible, certain teachings that are applicable to this subject, and which I venture to assert, would, if conscientiously applied according to the dictates of these teachings, revolutionize in nearly every instance the operative procedure as practiced by the great majority of our profession to-day in the preparation of teeth which are to serve as attachments for crowns or bridges.

The feasibility of devitalization is a problem which requires our most conscientious and conservative consideration. It is a portion of the operative procedure incident to the preparation of teeth which are to be crowned and is indicated as a means of preventing the occurrence of such troublesome manifestations as peridental inflammation and alveolar abscesses, as well as to make possible and facilitate the necessary mechanical preparation.

*Read before the Columbus Dental Society.

The idea seems to prevail among those who apparently have not a clear conception of what the real purpose and object of this measure are, and thus proportionally miscomprehend the true application of the fundamental principles which constitute the actual indications and render them paramount and of first consideration, that the teeth as we happen to find them in regards to the state of sensitiveness existent, and in proportion to the degree of sensitiveness as retarding or defeating the mechanical preparation as alone indicating or rendering justifiable the removing of the pulp.

While hypersensitiveness is a factor to be considered and is one of the first and greatest obstacles encountered in performing the necessary mechanical preparation, it is comparatively easy to surmount it otherwise than by devitalization and is of minor importance when so considered. If a painless operation was the one thing desirable in this connection, devitalization might rightly and justly be regarded as circuitous and "extremely radical," for how much more scientifically and expediently could the same results be obtained through proper use of anesthetics.

The real indication for this procedure, therefore, is not solely to facilitate or render painless the mechanical preparation, but more especially to abort any pathological conditions such as inevitably follow the self-destruction of the pulp, or, as a means of preventing beyond a possibility of such occurrence by surgical removal of the entire pulp tissue and subsequently filling the pulp canals.

Because of the limitation in the application of the shell or telescope crown, these considerations apply more particularly to the posterior teeth where the requirements of a correct preparation most invariably demand the removal of a considerable portion of tooth structure, namely the greater portion if not all the enamel down to and within the gum margin.

Truly much depends upon individual requirements and a wide diversity of opinion exists as to what constitutes an ideal preparation.

Perhaps in the entire field of dental procedures, no one distinctive feature is of such intrinsic importance as the practical, scientific and skillful preparation of teeth for the reception of artificial crowns. And in accordance with and in proportion to our appreciation of the significance and importance of what these requirements are, will we become practical, scientific and skillful in

this procedure and in like proportion realize the necessity for and practicability of devitalization.

As clinical experience proves most conclusively that comfort, permanency and usefulness of these superstructures depend almost directly upon and in proportion to the skillfulness and accuracy in preparation of the foundation, and as our efforts in this particular field are confined to living, sensitive tissue which are so quick to respond to irritating and unnatural conditions, the most successful results can only be obtained under the most favorable conditions.

However, while the mechanical considerations are of the greatest and most exacting importance, the physiological requirements are equally as essential.

As comfort and permanency also depend upon a conservation and reproduction of natural conditions any apparent negligence must sooner or later manifest itself, not alone in evidences of failure, but in a sequence of pathological difficulties which date from the initial irritation produced or disregard of natural laws and conditions.

For many years no special thought was given to this feature of devitalization, for clinical experience had only revealed, as yet, the simple pathological conditions that inevitably manifest themselves at the gingiva as a faithful tell-tale symptom of poor cervical adaptation.

Such pathological conditions as these, however, which are generally more or less of a trivial nature, may not necessarily involve any more than just the comfort of the patient and in case of a well adapted crown, of course such troubles would be entirely absent. But other physiological requirements of vastly more importance demand our attention and if disregarded too frequently give rise to troublesome manifestations of a very serious nature and generally result in the death of the pulp, followed by such pathological conditions as virulent periodontal inflammation and alveolar abscess.

Such conditions as these are not desirable or to be invited, and consequently much time and study has been spent in the consideration of their cause and prevention, until it is generally considered by many of our most eminent authorities to be the manifestly safer precaution or procedure to remove the pulp.

A careful study of the histology and physiology of tooth

structure and the functions of the pulp tissue reveal many facts which substantiate this practice.

The histology of the cementum, dentin and enamel, you are all more or less familiar with, but there are a few facts concerning the pulp tissue which I beg leave to mention in this connection and which have an important bearing upon this subject.

The dental pulp is supposed to be a purely formative organ, whose physical functions terminate upon completion of dentin formation.

The odontoblasts, which is the name given to the outer layer of cells lying next to the dentin, are very irregular and give off spindle-shaped fibrils called fibrils of Tomes, which extend through the dentin and terminate at the juncture of the dentin with the enamel.

The nerve supply enters the pulp at the foramen and is distributed freely throughout the pulp, but does not enter the dentin. Every organ and tissue of the body is supplied with a lymphatic system, but such is not the case with the dental pulp; no lymphatics and no lymph canals are here found. The function of the lymphatics is to carry off broken-down tissue and hence we see why the pulp has so little recuperative power to repair itself after injury.

The pulp may be sacrificed and still the tooth is not dead, because it has life and is nourished by the peridental membrane and hence a crowned root, in which the pulp has been removed, has the same sense of touch as a perfect one.

Doctor MaWhinney, professor of special pathology, materia medica and therapeutics in the Northwestern University Dental School, in a lecture to his senior class, explained the sensitiveness of dentin in this manner:

"Why is dentin sensitive? Not because there is nerve tissue proper in the contents of the tubuli, for the tubuli contains no nerve tissue.

"Pain sensation is rather due to the fact that the contents of the tubuli are projections of the odontoblasts and because they are embryonic tissue possessing amoeboidal movements.

"If you take a jelly-fish, put him on the table, you will notice him draw up into a ball-like mass upon the slightest disturbance—draws up to protect himself. Now, this is exactly what fibrils of Tomes do upon irritation, they being parts of the odontoblastic

layer, affect those cells, and they in turn affect the adjacent pulp tissue and through it the sensorious, and we have pain, exactly as we would have if nerve tissue itself were being injured."

Thus we see why and how it is possible to irritate the pulp tissue and expose it to deleterious influences, even though we do not come into actual contact with it.

This physiological phenomena of the amoeboidal movements of the fibrils of Tomes as they recede from the slightest irritation impinging upon the true nerve tissue as they withdraw toward the pulp chamber is the commonly accepted theory explaining this pain sensation witnessed in the dentin.

As a matter of convenience I will again quote from Professor MaWhinney's lectures delivered upon the subject of hypersensitive dentin, which further explains this point and renders its application to the subject of this paper more comprehensive and further explains the scientific and practical reasons for sacrificing the pulp tissue in the teeth which are subsequently to be crowned.

"Remember always that these fibrils of Tomes are most sensitive at their terminations, so with the nerves of the body the terminations are more sensitive than the pulp itself."

"The living, healthy pulp that is not hyperemic or inflamed is not so very sensitive, not nearly so sensitive as are the terminations of the fibrils in this particular region, namely at the junction of the dentin with the enamel."

When a crown may be necessary either to restore a broken-down tooth or as an abutment for a bridge the old practice of treating it in much the same manner as though fillings were to be inserted, should be abandoned as an unsafe practice. It is seldom possible to properly prepare a tooth at the gingiva, especially in the interproximal spaces, the mesial and distal, buccal and lingual angles, because of the extreme contour of the teeth at those locations, rendering the removal of all the enamel imperative, without great pain and annoyance to the patient providing the vitality of the pulp is preserved.

The extreme inaccessibility of the locations, where most preparation is necessary and where the requirements are the most exacting and difficult to comply with, are the places where every facility should be taken advantage of and cannot be executed any too well, even though done under the most favorable conditions. The danger of approaching too near the horns of the pulp in

removing the occlusal one-fourth is possible and probable and extremely painful to say the least.

In short, the necessary mechanical preparation of a tooth for the reception of a shell crown demands the complete removal of the enamel which is designed by nature to protect the dentin and the complete presence of which alone insures the life and health of the pulp, thus virtually stopping the preparation as it were at the most vulnerable point, namely, at the junction of the dentin with the enamel.

The abrasive action of the rapidly revolving stone in shaping the tooth produces or acts as a mechanical irritant which may over-stimulate the nerve or even produce a state of shock. The danger of exposing the entire dentin and fibrils to severe irritation by large amounts of zinc cement, as well as thermal changes, the abnormal encasing of the tooth with a metallic covering, virtually a physical opposite to the natural covering of enamel, thus radically changing its environments, so as to practically isolate it or at least to greatly diminish the external or normal influences of secretions and temperature upon the nerve and blood supply of the pulp tissue, and because usually the pulps of such teeth have been previously subjected to the irritating and devastating influences of more or less extensive caries, are causes which are potent for evil and the deleterious influences of which, taken separately or collectively, seem but to invite and pave the way for ultimate and destructive processes.

It is claimed by some that when the teeth are ground in this manner and the dentin is exposed to large amounts of zinc cement, that the arsenic contained in the cement will eventually destroy the pulp. Such claim, I believe, is unreasonable and has not been sufficiently proven as yet to be offered or taken as a fact.

It is occasionally possible to crown without devitalizing.

Malformation or malposition as in case of peg laterals, erupted either in or out of the arch, where the peculiar shape of the exposed part of the crown is such as to require little if any mechanical preparation and where perhaps it would be inadvisable to employ a dowel crown because of the doubtful character of the root, a shell crown in combination with porcelain, known as the pulp preserved; being still protected from external influences by the enamel.

Abrasion, faulty enamel formations and in case of absence of

adjacent and occluding teeth which might under favorable conditions render unnecessary the removal of any considerable portion of the enamel, particularly at the occlusal end, although from the tendency of such teeth to elongate in the advent of the subsequent insertion of artificial substitutes for the missing adjacent and occluding teeth, providing the occlusal, mesial and distal surfaces of the tooth in question has not been sufficiently reduced to make possible the construction of a crown of normal dimensions and bearing normal relations to surrounding organs, the law of articulation and occlusion would have been disregarded to the detriment and usefulness of such substitutes.

All of these conditions and indications, however, which seem to render it inadvisable to devitalize the pulps should receive the most conservative consideration and such wise counsel as only experience and judgment can give. Age also furnishes some contraindications for this procedure as in case of teeth not fully developed. I believe Doctor Black is authority for the statement that a tooth is not completed at the apical foramen for about four five or six years after eruption; consequently such treatment should be deferred in the mouth of the young until the teeth in question are fully developed.

Old age again diminishes the necessity for such treatment, in cases where the patient has reached the age of fifty years or more, when in all probability atrophy of the pulp and deposition of secondary dentin has taken place to such an extent and conditions are such as to render them practically immune to the occurrence of such pathological conditions or at least to so diminish the liability of such an occurrence as to reduce the danger from such a source to the minimum.

Some practitioners who are naturally adverse to the adoption of this practice, or those who, by repeated failure at root canal filling have acquired a certain degree of prejudice toward this measure, and also those who are comparatively initiated into the secrets of success in root canal filling, maintain that the extreme difficulty encountered in gaining entrance to and the great uncertainty presented in connection with cleaning and filling small, inaccessible, crooked and tortuous canals as constituting another contraindication for the removal of the nerve.

A contraindication? That is generally advocated under the role of conservatism and which if allowed would practically exempt the twelve molar teeth from this treatment.

Certain elements of doubt of course enter into the procedure at this point. Personal equations can never be eliminated from human operations involving manipulative ability, etc., but as it is not the purpose of this paper to discuss the technic and detail incident to the proper filling of root canals it will suffice to say that if certain teeth possess root canals that are extremely difficult to fill, that these same teeth in question will be no easier to fill in case the nerve dies under the crown, which is too frequently the case as clinical experience proves, besides having an additional troublesome complication to contend with in the nature of an alveolar abscess or other pathological condition, and in consequence of which as a preliminary step before proceeding with the necessary treatment and root canal filling which has now become obligatory, it is imperative to totally or at least partially destroy the superstructure; and in this connection I wish to say that we are as responsible for the stability and longevity of the teeth which serve as abutments, as we are for the durability and permanency of the superstructure.

I thank the members of this society for their respectful attention to this paper, and as I said at the beginning, no claim for originality is made except perhaps that which might be claimed without any pretense to deserving credit, of collecting the authoritative teachings from current sources, that identify themselves with this subject, and embodying them all in one paper for the possible advantage which might be derived from their collective consideration as a whole in their application to this subject.

I have borrowed greatly from the writings of Doctor Goslee, and in conclusion will borrow again a quotation which voices the decision of many no less eminent than himself:

"All things considered, the prophylactic measure seems to be the conservative one, and as modern scientific treatment offers no palpable excuse for subsequent pathological conditions, it seems that the orthodox dogma of preservation is inapplicable to a great majority of cases, where experience and judgment teach us the demand for a perhaps more radical but manifestly safer procedure."



TO OVERCOME THE SHADOW EFFECT IN PORCELAIN INLAYS.*

BY ROBT. BREWSTER, CHICAGO, ILLINOIS.

The earlier technical difficulties in connection with porcelain inlay construction may be said to be now practically mastered. Experience has taught how best to form cavities for the secure retention of the inlay, and the best way to manipulate the various bodies, and with the advent of the Price pyrometer, fusing porcelain—formerly considered one of the difficult portions of the work—is now reduced to a simple operation.

Those entering into the porcelain field at the present day do so under very advantageous circumstances as compared with those who entered it seven or eight years ago, most of the problems associated with these new procedures and new materials having been solved.

There is yet, however, one phase of the work, indicated in the title of this paper, which has occupied the minds of all inlay workers, and has been given rise to much discussion and theory. It has always proved a vexing problem and until recently no tangible solution has presented itself.

The writer's theory, based on observation and experimentation during the past two years, has led him to conclude that the objectionable condition produced by using cement as an attaching medium, should (in the absence of a transparent cement) be met by another medium which would modify or render ineffective the objectionable property of cement to absorb light.

The writer's theory, tersely stated, is that the rays of light which enter a natural tooth in situ, are reflected back by the moisture contained within the tooth, and thus what is known as "vital appearance" is produced.

In providing a substitute for natural tooth structure, the writer has always deemed it necessary to give the porcelain a translucent quality or character, and it will be freely conceded that this has added much to the success attending porcelain work, inlays being frequently made which, when placed in the moist tooth, are difficult to discover, there being the same vital appearance in both inlay and tooth, providing of course that the colors of the porcelain have been properly blended, and the

*Read before the Odontological Society of Western Pennsylvania, March, 1905.

whole is properly fused. Immediately however, that a thin layer of cement is interposed between the inlay and the tooth a changed appearance is observed, a change different to that noticed when the inlay is still upon the platina. One would naturally suppose that the interposition of metal between inlay and tooth would entirely destroy the life-like effect of the former when compared with the living tooth in which it is placed, but as is well known such is not the case.

The reason for this apparent anomaly is that the surface of the platina upon which the inlay is baked is bright and partially reflects some of the light, whereas the strata of cement entirely absorbs the light rays and changes the appearance of the inlay.

To remedy this condition your essayist recommends the use of a very dense white body having a bright reflecting surface, he has named it "matrix lining" to distinguish it from the foundation bodies. It is exceedingly opaque and fuses higher than they.

The matrix is to be lined with this material in sufficient thickness to produce a fair measure of opacity, but kept back from the extreme margins, and fused until the surface is quite bright, a temperature of about 2350 degrees Fahr. produces an excellent surface. It may be used entirely as a foundation, being very strong, and with the added advantage that it is always of the same basal color, therefore simplifying the selection of the enamel shades.

It is obviously much easier to build up from a white base than from one varied to suit the different shades found in dentin.

The density of the "matrix lining" will be found sufficient to prevent the light rays passing through it and it is hoped that much benefit may be derived from its use.

DISCUSSION.

DR. J. A. LIBBEY: Mr. Brewster sent me a specimen of this lining some time ago, but I have not had an opportunity to test it, consequently, I am not ready to confirm his views.

He has worked in porcelain, and has recognized the trouble we have in shadowing. The essayist claims to have overcome that trouble. I hope his claim is correct; judging from theory, I doubt it.

We are aware that in all cases the dentine is of a yellowish tint, and he advocates using a very white lining, which I know will prove to be a mistake, to prevent the reflection of white rays.

The artist defines colors as warm and cold; and one of the cold colors is one that will not absorb light rays or reflect them, and one that will reflect better than all is white, consequently, judging from that, I cannot help but feel that Mr. Brewster is mistaken, and that time will prove it to be true.

We will take a case where the blending of the shades has been almost perfect, but that in laying it in a wet cavity you can scarcely detect it.

In my experience if I use a white cement, I am sure to get a grey shade, because the light is reflected instead of absorbed, but in that case, if I use sufficient yellow to absorb the light instead of reflect it, I will have less shadow. There is where we find a great deal of our trouble. The location of the cavity also has a great deal to do with it.

Another thing he speaks of, in reference to the matrix, when the inlay is on a bright, polished surface, such as a platinum surface. I have never yet seen one that will match the tooth structure when the matrix is removed. There is a reflection that makes it very difficult to tell whether you have matched that shade.

This is a matter that every one who works in porcelain must take up, and study every particular—study every point—until he can learn how to obviate this problem of shadows. This is the greatest trouble we have, to give things an artistic effect.

Until I see it proved to my mind that a white underground or white lining will take up rays, and make less shadows, I cannot be convinced.

DR. C. B. BRATT: I just about agree with Doctor Libbey, the lining problem has not been solved yet. I don't think we are any nearer than we were before. I had a sample of this material, but I have not had time to use it.

I was thoroughly disgusted with low fusing porcelain, and I dropped it for quite a time. To-day, I get better results with inlays worked with Jenkins' than I do with high fusing.

To come down to the thin porcelain, you have to have something that is not so transparent as high fusing. The high fusing bodies are more transparent than Jenkins', and I think that is the reason we get better shades in Jenkins' than in higher fusing.

Doctor Reeves advocates fusing different shades, and you can do that by mixing properly, and manipulating the different shades, and I am satisfied that is going to accomplish more than any lining you can put on.

DR. W. H. HAINES: I think every porcelain worker, or every one who hopes to be one, will run across some difficulties in shadow effects, yet they try almost everything to overcome them. I have had this trouble; when I want to get a good, light color, for instance, I would find when I would set the inlay that I would invariably have a dark color; I reasoned it out that I had failed to get the color I wanted from using the

light cement, and I took up the darker cement. I used some of the yellow, and I found that I had better results.

Although I have not used this lining Doctor Brewster has turned out, I am getting better results from the cement. I think there lies the secret of the effect of the colors, the changing of the porcelain. I think if we could get the color of the cement, it would help us as much as anything. I am very much impressed with the porcelain work, and think it is a good thing. I use it in my own practice, and have allowed myself to become very enthusiastic over it, and I think that is one of the things we should avoid, becoming enthusiastic and doing away with the good old stand-by—gold.

DR. O. L. HERTIG: I have just had a limited experience with this lining; I find it does to the inlay just exactly what cement will do with it. To my mind this business has been overdone.

In regard to porcelain, Doctor Bratt and Doctor Libbey are claiming to advocate Jenkins'; the only difference is, Jenkins' has more opaqueness. Doctor Haines thinks the mixing of cement is the thing. I mix the colors, and lay the cement on the surface of the tooth. You will be surprised how that cement will show up when you lay it on the tooth, and in that way, you can guide yourself in the color of the cement.

THE TRAINED DENTAL NURSE.*

BY C. M. WRIGHT, M. D., D. D. S., CINCINNATI, OHIO.

I should never have had the gall to voluntarily inflict on you a paper on this subject. We have heard so much and read so much about the dental nurse and the dental assistant in our Societies and periodicals that one would suppose the subject had been completely exhausted. But your committee assigned the topic when it asked me to write a paper for this meeting.

I have, as you know, urged the establishment of a partial course in dental colleges for the training of women for certain positions in dental practice—as dental nurses, dentists' assistants, or, as I have called them, sub-specialists in dentistry.

In the discussion following the first paper which I read upon this subject, some three or four years ago, a visiting physician who was called upon for remarks, facetiously suggested the name of *scrub-specialists* for these women. This created a laugh and my earnest words went for naught at that time. I thought of it, but was too polite to ask this physician what he called himself, when with finger nails he was compelled to re-

*Read before the Ohio State Dental Society, December, 1904.

move certain obstinate impactions from his patients, and whether his pride in his social status continued to the end.

There has been no question as to the value of the assistant in modern dental practice. She is useful at the chair, in the laboratory, at the desk with appointment cards and account books, but the point which I have tried to impress is that this class should have opportunity of becoming trained at a school. When she has finished a course specially arranged for her in a dental college, where she would be taught to do minor operations like removing tartar and polishing of the teeth, and massaging of the gums, and would know something about sterilization and dental hygiene, she should receive a certificate and be officially pronounced as qualified or trained, just as is the trained nurse in medicine. She would then be competent to get employment as an assistant, or could devote herself exclusively to the "manicuring"—as somebody has jokingly called it—of the teeth of children and adults at some definite office, or at the homes of her patrons.

In all former papers I have laid stress upon the special value of the services of these women in preventive dentistry or prophylaxis.

To-day I shall entirely ignore this aspect and not once mention preventive dentistry, prophylaxis or hygiene, and I sincerely hope that if any discussion follows that this point may be remembered.

I shall only call your attention to the modern demand for luxuries which have become twentieth century necessities and to modern conveniences, some of which we call sanitary because we like the term.

Times have changed. We don't live as our fathers did. The dentistry of a quarter of a century ago would not be accepted to-day. The instruments and appliances of that time are out of date, like back numbers of a fashion magazine.

Electricity, compressed air, sterilization, new therapeutics and new methods of applying remedies have become universal in dental practice.

New ideas about orthodontia, prosthesis, esthetics, pathology and etiology have taken the place of our most advanced notions of twenty-five years ago.

If the great operators who passed into history before that time should visit a modern dental office their ghostly astonish-

ment would be so profound that with one accord they would each cry, "Take me back, take me back, take me back to Herald Square."

And in medicine! Look at the history of the trained nurse! A few years ago only here and there an enthusiastic physician favored the establishment of schools for the training of nurses. At the bare suggestion, prejudice of colossal proportions arose to combat the inauguration of such an innovation. Old physicians shook their heads and shrugged their shoulders and objected to the recognition of a class of partially educated women to be associated with them in medical or surgical cases.

The opposition was especially directed toward the trained nurse in medical cases.

How is it now? Even the oldest foggy of a doctor calls in a trained nurse whenever it is possible, and freely acknowledges that his treatment is vastly more satisfactory and successful when a good nurse can be obtained to assist in the case.

And the patient! Those who had deep-rooted feelings against the nurse, and who knew that she would remind them of a hospital and a hearse—that she would be a tyrant, that they would surely die if delivered over to the tender mercies of an ogress, now boast about their trained nurse as they do about their coachman or *valets de chambre*.

The trained nurse in medicine has come to stay, while the Sairah Gamps and Betzy Priggs have completely vanished from the real world, and only live in history to tickle our imaginations and cause us to draw comparisons between the past and the present.

Take the bath-tub! A quarter of a century ago it had not been domesticated in America, France or Germany. England was laughed at by all the world, for when the high-class Englishman traveled on the Continent, he carried with his luggage a "bath-tub, don't cher know." Svengali nearly died of laughter when he found *two* in one day in their bath-tubs—Taffy and Little Billee. He wondered what the Englishmen could have done to get themselves so dirty.

Now, in all of the civilized countries the tub—not simply the Saturday night scrub—but the morning tub is as common as *café au lait*.

The American farmer, "the noblest work of God," as Bill

Nye asserts, used in the good old days, "to get up at 4 o'clock in the morning, go out to the barn, worry the pigs and stir up the geese, and then come back and sit on the porch and wait for daylight." Before he went into breakfast he washed his face and hands at a tin basin on a bench on the back porch and slicked his hair with a curry comb that hung by a string before a three by four-inch looking glass tacked to the wall beside the kitchen door.

Now, no farm house is complete without its running water and bath-tub.

Shall I go on about electric cars, automobiles, flying machines, telephones, compressed-air carpet-cleaners and other modern improvements?

All this only shows to us in the most pointed way that we, the dentists, are behind the times on the trained dental nurse question.

We should then take steps immediately to keep up with the procession in its march of progress and establish classes in our dental colleges for the training of girls and women for this important work that lies between modern dentistry and the cultured people.

The demand for her services exists now. Cultured people in cities and towns are waiting for her.

The dental profession needs her. Why should not this meeting of the State Society appoint a committee to confer with the colleges and the law-makers, the Ohio State legislature, and make arrangements as did the physicians a few years ago, and establish the training school? The reasons why I have looked to the colleges is because they have the material ready at hand for the training school course. They have the patients in their infirmaries—the lectures on subjects proper for this department, and the teachers familiar with the needs of this special class. Then the moral effect on the general student would be good, in the direction of increasing his self-respect and dignity, while giving him a better opportunity for wider culture in larger things.

DISCUSSION.

DR. J. R. CALLAHAN: I am partly guilty of getting Doctor Wright to write on this subject. My reason on this occasion of asking him to talk about the dental nurse is that we have taken no definite action, and I had

hoped that at this meeting we would get to work and do something on that line, for we certainly do need them. Of course we must disagree with the Doctor in some of the details. In the first place, he advises the establishment of a partial course in dental surgery. A great many men would prefer to train their own assistants; but I do approve of the college course. I have not much idea of what it should be, but it should be done by representative men in their own lines. The Doctor thought these trained nurses or assistants might practice in the homes of patients. I would be very much opposed to anything of that kind, because they would assume a place that they are not fitted for. I believe their place should be in the office of the regular recognized practitioner. I believe in this connection that the dental profession is far, far behind the times. We are up to the times of course in our special work in scientific ways, but when it comes to the spirit of the times at large, the movement of the world at large, we are still away back at the rear end of the procession. It is time we were getting up to do something, to do something with our brains, and of course with our hands as well. I am not attempting to say that the dentist does not work with his brain, but it seems to me that he might use his brain more and his hands less, and he might earn a little bit more money. He hires a little girl at three dollars a week to stand around and look at him. If he had a good trained nurse to help him at this work it would be a paying investment I am quite sure, and the people demand something of this kind. I suppose you all have the same experience. Some patients will ask you in a half-hearted sort of way, like they expected you to push them off the chair, "Please clean my teeth off a little bit." That should be done by an expert, but I think you will agree with me that there is not one man in seven hundred dentists who is an expert. Another point about the establishing of a department in a college; when you get a good assistant and you have one two or three years and she takes a notion to leave you, and for the first two or three years afterwards you are lost and there is no supply. But if there were a class coming through the college every year there would be a supply that you could send and get another one to fill the place. Now there are obstacles in the way of taking a step of this kind. In the first place it is the law. The law says that any one who performs and receives pay for any operation in the mouth will be classed as a dentist. That would have to be changed. In New York State they have had such a law presented and I believe the bill has passed. I think the least we can do is to appoint a committee to confer together and report what should be done, a committee to report to us next year, and, therefore, Mr. President, I move you that a committee of five be appointed, three of whom should be college men, to confer together and report to the Society next meeting. Motion carried.

DR. H. F. HARVEY, of Cleveland: The paper has been presented by the writer in his usual characteristic manner, and it seems to me that if we are to be progressive as a profession, or individually progressive, that this is a matter that we should give serious consideration. We understand that he means by the dental nurse, or the trained nurse, one who has received a training at some school organized for such purpose. I am a little disappointed that he has not given us a more definite idea of what

he would consider such a training should consist of, how lengthy a course and of what such a training would be. If it were only going to be for two or three months, perhaps most of us could train our own to suit us better than any institution could train them. If they are to have a long course, as the nurses in the medical profession are required to take, they might as well graduate them dentists and then they could get over the objection that Doctor Callahan has raised about the law.

It is recognized that most every one has at the present time an assistant for various duties, such as receiving the patient, attending to appointments, telephone, and such things, but I think there are very few who have their assistant trained to act in the capacity he suggests. He has spoken of the trained nurse of the physician, and of the progress they have made, and that illustrates the progression in the medical profession as well as in others; but it seems to me that the fact that the physicians are recognizing trained nurses as an essential is a little bit different from the dental profession, for different reasons; one that I might recall or think of at present is that when those nurses are trained they are trained to take care of patients either at their homes or in the hospital; and, for instance, in a case of typhoid fever, the care of the patient would be the same whether she were employed by one hospital or another, or in one locality or another, so that her services would be practically the same wherever she was called to go. Now it seems to me that the requirements of an assistant or a dental nurse would be quite different. That is to say, an assistant that would meet the requirements that Doctor Wright might wish or Doctor Callahan might wish, might be quite different from what some of the rest of us might wish, and this would vary according to the location of the practice and the character of the practice and all such things.

Then there is another thing. We can't say just who shall enter these schools for training. Now there was a paper presented here to-day referring to the personality of the dentist, and I think the personality of the nurse would cut quite a figure, and the dentist would have much to say about that. It does not make so much difference about the personality of the nurse to the physician, so long as she is competent. It does not make very much difference to the family who employs her, at it is usually for a limited time only. I feel a little bit particular about the personality of the person I would want to have around me for a great length of time, and I think all of us would feel that way and most of us would prefer to make our own selection in that regard. Now those are some of the things which it seems to me would be very serious objections when it comes to establishing a school for trained nurses. However, I think the paper worthy of serious consideration and that something might be done along this line. I would like to ask Doctor Wright when he closes the discussion to define what his ideas of training would be and how competent a person should be to perform these duties. An assistant of some kind has become a necessity for nearly all of us. Twenty years ago perhaps there were not more than two or three in Cleveland who employed a lady assistant in the office, but to-day it is almost an exception where they do not keep some one, and as Doctor Callahan says, pay from three dollars a week up, and that depends on what is needed in that particular office.

There is such a wide difference in what men would want in these trained nurses that it would be very hard to establish such a training course.

DR. H. C. BROWN: I did not give the paper very close attention, as I was attending to some other matters at that time, but it appears to me that if I desire an assistant in my office who is qualified to do a certain amount of work, and this limited assistance requires a college training of perhaps two years, together with some specified preliminary education, then I would prefer securing a person who had met all the requirements of the recognized dental college course and the law, and secure a regular graduate and legal practitioner. I would prefer to have some one who was fully qualified to care for my practice in my absence, as otherwise there would be a strong tendency for the violation of the law, if this assistant that you may have at your office has required certain knowledge from this course and a great deal more from practical experience.

This assistant, or dental nurse, would necessarily demand a salary, perhaps two-thirds of what would be demanded by a regular graduate, and for my part, when it becomes necessary for me to have a dental nurse I shall go further and select a person who is thoroughly qualified, both professionally and legally, to attend to all cases that come to me, and that I may be able to refer to such an assistant. I know of several dentists in the State, and they are members of our society, who have lady graduates as assistants; they feel at liberty to turn over to them many of their patients and thus meet the full requirements that are laid down by the law, supposing of course they are registered, and at the same time are giving their patients value received.

I contend when we are securing an educated assistant we had better go a step further and get a person who has been thoroughly educated as a dentist.

DR. J. S. CASSIDY: When Doctor Wright spoke of a sub-specialty in dentistry, now recognized as a "dental nurse," I insisted he should continue on that line so as to identify himself as the originator of this whole thing. I had sympathy with the idea when he explained to me his notions upon the subject. It is to be a sub-specialty; not a trained nurse, in your office, not a trained assistant. It is to be a business by itself. The party qualifying having a sign up on the door or front of the house, "Trained Dental Nurse," and to make it more positive that it is Doctor Wright's idea you might have "Wright Dental Nurse." Talking about trained assistants for a sub-specialty—that is no way to ever reach the public. They are coming to your office, not to that trained dental nurse. They neglect their mouths first through forgetfulness and then through absolute carelessness, knowing they can get to you and to me and have their mouths put in condition for money. They talk about it and we say, "We do not do it for money," but we do all the same. Now let that trained dental nurse supply the demand that exists and dentistry as such will be elevated to that extent. There will be something pertaining to the teeth below a dentist. This trained nurse is not to be a graduate from a dental college, but a trained nurse. Does a medical man have a trained nurse in his office? No, he has an assistant. She is independent

of the doctor. He might recommend her, but that is as far as he can go. I simply want to impress upon you, gentlemen, that having a trained nurse as an assistant in your office is a mistake, and having a whole lot of graduates in your office is also a mistake, so far as elevating your profession is concerned.

DR. W. G. EBERSOLE: In one sense Doctor Cassidy says that the dental nurse would take the place of the trained nurse to the physician. Good and well! Again he says this would be a sub-specialty, that a nurse should have her sign on the door, "Trained Nurse" or "Wright Nurse." These two statements are inconsistent. The trained nurse to a physician works only under direction of the physician. The gentleman again says that we do not find the trained nurse in the office of the physician. Many of our leading or best physicians employ at all times one or more trained nurses. I believe that the trained dental nurse should be employed in the dental office only except in cases where there is a patient who cannot go to the office. The question of a trained nurse for the dental profession is a question in which I am very, very deeply interested, and I think the time is ripe for steps to be taken to have either in connection with our dental colleges or a special school for preparing assistants or nurses for the dental profession. It has been suggested by some of the members that the trained graduate, that is, the dental graduate, should be selected as the dental nurse. Now I have tried the trained medical nurse; I have employed at the present time a lady graduate dentist, I have employed and employ now two ladies who have no training except that obtained in my office, and they are very efficient assistants. The dental graduate is certainly a very, very valuable assistant, but we must remember that a lady who attends a dental college and follows a regular dental course, if she be worth anything, has an ambition to start a practice for herself. A woman who goes into a school and takes a course of that kind and has not an ambition to form a practice of her own is not such a woman as you or I want in our office. What we want is a class by themselves where we know they will work under our direction. Now the dental nurse who is the most valuable to use is the one we have trained ourselves to follow our own ideas. There is a broad field for the dental nurse. It is a necessity, an absolute necessity. I have absolutely no use at all for the office girl. We want dental assistants, trained at the chair, to aid and help us, trained to make for the patient every operation as easy as possible. Now if I talk longer I am going to get on to my hobby, so I will quit. If you want to make operations for your patients easy, employ some one to go into the preparatory room and prepare your patients for you. To do this we must have some sort of school. Not less than a year and a half ago I wrote to the presidents or deans of the various colleges throughout the country asking them to recommend some one who would take a position as a nurse or assistant. I was very fortunate in obtaining a young lady of that kind, but I can't keep that girl simply because she has an ambition to establish a practice for herself. Let us have a class of trained assistants. For the man who is going to get the most out of his work is the man who will please his patients the most and to do this means to employ competent assistants.

A MEMBER: Then your idea is not to have that nurse only do the cleaning of teeth—an all-round nurse?

DOCTOR EBERSOLE: An all-round nurse. How many times are we in the midst of an operation when some one comes in with a terrible toothache. Teach your nurse to make applications. I don't want simply some one to stand at the chair and clean teeth, but there are one hundred and one things these girls can do well, and in many instances a great deal better than the busy dentists. Another word in regard to what these nurses can do. The trained nurse can take care of children many times much easier than the busy dentist, and they should be trained to look after such children. The graduate nurse that I have takes care of almost all of my juvenile work.

DOCTOR JACKMAN: I think Doctor Wright is along the right line. I think we should have something of this kind, and in as much as the matter has been settled by the appointment of a committee, and this by resolution, I think the matter had better rest for the present.

I want to take exception to one thing that Doctor Ebersole said. It certainly is not legal when a patient comes into the office with a toothache to have your lady assistant treat that tooth. I think one of the most delicate operations that we dentists have to do is to dress the tooth and relieve the patient from suffering. I do not think that any lady with untrained fingers could do that properly. She could not do it to my liking. So I must take exceptions to that. I never have my assistants do anything like that at the chair.

DR. HENRY BARNES, of Cleveland: I desire to take exception to Doctor Jackman's provision upon this subject. Those who have had the ministrations of a woman's touch about the mouth are not slow to proclaim their praise. There are many minor operations which a skilled lady attendant or nurse, and especially one having mechanical ability, may perform for our patients, thus serving a double purpose, pleasing the patient and relieving the dentist of much that he is now called upon to perform. Doctor Wright's idea respecting their education seems sound, if we are to have such nurses they should have a school especially devoted to this purpose and would occupy a position in relation to the dentist like unto that of the surgical nurse to the surgeon.

DECIDUOUS TEETH.*

BY GILLETTE HAYDEN, D. D. S., COLUMBUS, OHIO.

As a profession, we recognize the fact that the teeth of children require, proportionately, the same study and care as do the teeth of adults. In theory, at least, the majority of us uphold

*Read before the Columbus Dental Society.

this view but in practice—do we always give to this branch of dentistry the consideration that is its due? Do we neglect these temporary organs because we have no definite understanding of them, or because we underestimate their importance, or because we fail to appreciate the fact that a child whom we treat successfully, becomes one of our staunchest adherents in later years? A child's confidence and loyalty are as much to be desired as the same qualities in the adult patient.

Good and effective care of the deciduous teeth is not easy of accomplishment. In the first place, the majority of parents are at fault for allowing many disquieting conditions to arise before a dentist is consulted. In the second place, we are dealing with growing little folks whose nervous systems are easily excited, whose restlessness under restraint is proverbial, and whose self-control is not markedly developed.

These things must be taken into consideration in working upon the deciduous teeth. We must neither wear the little folks out by long operations or operations that cause continued pain, nor give their nervous systems a shock which will not soon be forgotten. We must keep up their interest while they are in the dental chair and lastly, and by all means the greatest in importance, we must gain their confidence by our *honesty* and *sincerity*.

DECIDUOUS TEETH.

	Central	Lateral	Cuspid	First Molar	Second Molar
Eruption	6-8 month	7-9 month	17-18 month	14-15 month	18-24 month
Completion—One year later.					
	Central	Lateral	Cuspid	First Molar	Second Molar
Absorption begins	4 years	5 years	9 years	7 years	8 years

PERMANENT TEETH.

	Central	Lateral	Cuspid	First Bicuspid	Second Bicuspid	First Molar	Second Molar	Third Molar
Eruption.....	7 yrs.	8 yrs.	12 yrs.	10 yrs.	11 yrs.	6 yrs.	12 yrs.	16-20 yrs.
Completion	10-12 yrs.	11-12 yrs.	15-16 yrs.	13-14 yrs.	13-14 yrs.	10-12 yrs.	15-16 yrs.	19-23 yrs.

Don't tell the children that "it will not hurt," when you know it will. Tell them that it is going to hurt and then appeal to their bravery. Praise the boys for their "grit" and "nerve" and tell the little girls that they stand it better than a boy. (That is an almost irresistible compliment.)

The hardest patient with whom we will have to deal is the child who has learned by bitter experience, "Put not thy trust in the dentist." The most difficult thing we will have to accom-

plish, is to gain the confidence of a child who has been frightened in a dental chair, after having been told "It won't hurt." So, let us make them believe in us first, then we can work to advantage.

One of the necessities in the treatment of the deciduous teeth, is an accurate knowledge of the average ages at which eruption, completion, absorption and loss of the deciduous teeth, take place.

The first chart, which was made in accordance with Doctor Black's statements regarding this subject, gives the *average* age at which each of these stages occur. From this average there is a wide variation, a variation occurring not only in all the teeth of a certain child but one which may be noticed only in certain teeth in the same mouth. We see this in the delayed absorption of the roots of the cuspids where these little teeth remain in their positions for years. Then again we notice that a first temporary molar is quite frequently shed almost a year before the corresponding tooth on the opposite jaw drops away.

Although these figures do not cover all individual cases, still, they are of inestimable value to us as a guide.

Though the permanent teeth are not to be dealt with in this essay, still it may not be amiss to show this second chart in connection with this subject, since the first permanent molars are a stepping stone from the deciduous to the permanent dentition.

You will notice in particular that the first permanent molar, erupting at the age of six, is not complete until the tenth to twelfth year, thus requiring from four to six years for the roots to attain their final proportions. This is the first tooth of the permanent set to erupt and takes the longest time to become complete.

To return to the deciduous teeth:

Knowing the average ages for these periods in the life of each deciduous tooth, the next important consideration is the anatomy of each one, with especial regard to the points of difference between these and the permanent teeth.

We find no difficulty in detecting the differences between the eight anterior deciduous teeth (four superior and four inferior), and the corresponding ones of the permanent set. These temporary teeth are all smaller in size, lighter in color, the crowns much shorter in proportion to the length of the roots, and the necks more constricted than in the permanent teeth.

One noticeable difference between the superior cuspids is the fact that the mesio-incisal edge of the temporary cuspids, in nearly all cases is longer than the disto-incisal edge; just the reverse of that found in the permanent cuspids. In the lower deciduous cuspids, the mesio-distal measurement of the crown is less than in the superior, and the root is larger in proportion.

In the first molars, the buccal and lingual surfaces incline towards each other at the occlusal, thus giving to the latter the appearance of being long from mesial to distal. The occlusal surface thus formed, is narrow in proportion to the greatest bucco-lingual measurement of the crown. This condition is much more noticeable in the lower than in the upper first molars.

The first superior molar is unlike any other molar tooth, being developed from three centers and having three lobes forming the crown portion. The bucco-lingual measurement is nearly twice that of the occluso-gingival, and the gingival ridge is excessively developed on the buccal side, standing out from the gingival line, from one to three millimeters. The triangle formed by the apices of the roots is nearly twice the size of the triangle formed by the base of the roots.

The second superior molar is almost identical with the first permanent molar, except that it is smaller, lighter in color and more constricted at the neck, while the roots are more widely separated.

The inferior first molar is rather remarkable for the prominence of its gingival ridge. This ridge slopes toward the occlusal surface as it extends from the mesial to the distal angle, thus making the crown longer, occluso-gingivally, at the mesio-buccal angle than at the disto-buccal angle.

The inferior second molar is almost a small reproduction of the inferior first permanent molar. The necks of these temporary teeth are more constricted and the roots more widely separated than in the permanent teeth, however.

Next we come to caries of the deciduous teeth.

The teeth of children are as liable to caries as those of adults and the progress of decay in both is identical. From statistics made by Dr. S. G. Yates, we learn that from ninety-two to ninety-five per cent of the children in the United States and Canada, have defective teeth.

Comparatively few of this great percentage ever come within the dentist's field of operation, except for "extractions." But

for those who do come under our care, we must be ready to do painstaking work.

In the treatment of the deciduous teeth, let us remember that from the *structural* standpoint, there is practically no difference between the temporary and the permanent teeth. A deciduous tooth will hold a gold filling just as firmly as a permanent tooth. Such a filling will prevent decay and fulfill all the conditions of a good preservative just as thoroughly in the temporary as in the permanent tooth. So, as far as *structure* is concerned, the filling material used would be the same for all teeth whether deciduous or permanent. But from the standpoint of conditions under which we must work upon the deciduous teeth, we have an entirely different set of circumstances to take into consideration. Here we are not dealing with tooth structure alone; we are working with growing children, upon teeth which are not meant to do service more than six or seven years, and are in the process either of *construction* or *destruction* during four years of their period of usefulness in the mouth. Because of these things we are called upon to do slight but effective operations, which will cause the child little or no pain and yet keep the tooth in a useful and healthy condition.

These little patients come to us with teeth that present cavities of all classes, ranging from the simplest to the most complex; from pit cavities to those involving the pulp.

In filling these teeth we are practically confined to the use of plastic materials; the cements, gutta-percha and the amalgams of the silver and copper alloys.

Those cavities not involving the pulp may, as a rule, be dealt with much as though they were in permanent teeth, with these exceptions:—the extension of the cavity walls to prevent further decay, may be less rigidly observed, the cavity walls need not be so accurately shaped and proper excavation need not always be obtained. In many instances these cavities may be treated with silver nitrate, instead of placing a filling. Care should be used in the application of silver nitrate, however. Never use it where there is not a heavy covering of dentine over the pulp, for it is one of the best toothache producers to be found.

In cavities involving the pulp, we have a more difficult problem with which to deal. Take a child five years of age, with an exposed pulp in a first molar. It is good practice in this case, to devitalize, remove the nerve and fill the canals. A root filling of

gutta-percha seems to have no deterrent effect upon the absorption of the roots. The pulp of a tooth has nothing to do with the process of absorption, the peridental membrane being the tissue involved in carrying on this process.

But, take the same child a year and a half or two years later and with an exposed pulp in the first molar on the opposite side of the jaw. We devitalize and remove the nerve only to find that the roots are partially absorbed and a canal filling is impossible. These are the cases which try our patience. What can we do in this case instead of destroying the pulp? How can we keep the tissues alive and in a comfortable state? There have been several preparations on the market which were compounded to meet the demands of such cases and doubtless many practitioners have like materials which are valuable for their preservative qualities.

One formula, which has been most valuable to me, is made up of

Eugenol	3 ss
Black's 1-2-3	3 ij
Oil of Cloves	Gtt. xx
Oil of Cinnamon	Gtt. xv
Oil of Cassia	Gtt. xv

as the liquid, and *oxide of zinc* as the powder. The powder and liquid mixed together to form a thick paste, and carefully placed over an exposed pulp, will relieve the congestion and keep the cavity in an antiseptic condition for months. By replenishing this filling from time to time the tooth may be saved with a living pulp, until time for it to be shed.

Next we come to abscessed conditions. In many instances these cases are difficult to handle. Where an abscess occurs early in the life of a tooth, *i. e.*, when the roots are complete, the treatment indicated is the same as for a permanent tooth. It is only when these conditions arise after the beginning of the absorptive process that we are sorely troubled. There are only two things we can do; either we must temporize and treat the tooth from time to time, keeping it free from pus and pain, or else extract it.

Do abscesses on deciduous teeth cause damage to the developing permanent tooth? Not always, but where the abscess forms before the enamel of the permanent tooth is complete, there is always great danger of the pus breaking through the enamel organ and destroying it. In such an event the permanent

tooth will erupt in an imperfectly formed state. If, on the other hand, the abscess does not form until the crown of the permanent tooth is complete, there is seldom any fault in the enamel of the permanent tooth resulting from the abscess. But the damage to the temporary tooth and the surrounding tissues is considerable. The roots of the deciduous tooth will never be absorbed as long as pus is present. Just so long as the peridental membrane is in a pathological condition, there can be no absorption of the roots.

In conclusion, let us remember that in order to treat all of these conditions properly, it is necessary that we give time, study, patience, care and skill to the teeth of the children who come to us to receive our professional services.

THE RELATION OF HYPEREMIA TO DENTAL DISEASES.*

BY DR. E. L. PATCHIN, CLEVELAND, OHIO.

I shall have to bore you with a dim outline of anatomy, just enough for my point on hyperemia or arterial lesions to show the relation and effect upon the peridental membrane. The human brain has more circulation than any other vital organ of its size, and, on account of its irregular surface or convolutions, is capable of being packed into smaller compass with less restriction to its circulation.

The circulation of the brain is so well devised that the large vessels enter at the basis crani, two at the anterior, two at the posterior and unite in a middle region to form the circle of Willis, where the blood currents unite and the heart contractions are to an extent modified and equalized. From this circle the distributions are made to the hemispheres of the brain.

There is an absence of communication of the arteries, so if there should be a thrombus or embolus in one, it does not directly affect the others; particularly is this true of the cortex or brain mantle, which is very important, as it is the seat of mind and reason.

According to Berkley, Tuke and perhaps others, the abnormal loss of brain or nerve cells (as they are of nervous origin)

*Read before the Cleveland City Dental Society.

affect the mental and physical well-being in proportion to the amount of degeneration of nerve cells.

The arterial blood furnishes the nutrition to the arteries and nerves connected by papilla; if it is abnormally copious, it is active; if thick and clotted, it is passive hyperemia.

Hyperemia mixed with irritating matter is supposed to cause arteritis and is brought about by influences both *in* and *out* of the artery; this is commonly called blood-clot and may result in thickening the walls of the vessels as in hypertrophy. Doctor Talbot, in a late paper says: "It is the result of endarteritis or inflamed internal coat of the arteries and capillaries."

The arteries consist of an endothelium or layer of flattened cells. These are in contact with the blood currents; next are the tunica intima, that are elastic fibers laid longitudinally; next comes the middle coat arranged transversely.

The outer coat consists of longitudinal connective tissue, which contain the *vaso vasorum*.

The walls of the capillaries consist of almost nothing but the intima, or inner coat; these contract or dilate without muscular fibers. The veins also have a certain contraction and dilation from irritation of the intima.

Each coat of the arteries takes a special type of inflammation. A thought occurs to me that if such is the case, we must look for a different arterial supply for each of these coats of the artery. (If this be true, it is a revelation in seamless tube making.)

Inflammation of the intima of the blood vessels may be due to irritation from *within* or *without*. When it occurs from without, as in interdental blood vessels, any irritation will cause the arterioles or gates of the arteries to open and transfusion of blood, etc., is thrown into the capillaries, sometimes to their destruction, and we observe it in scurvy of the gums; or in the use of calomel, in the streaked appearance denoting its presence in the circulation.

Particularly is this true when medicaments are given and an irritation from within is set up by hyperemia or gingivitis. Many drugs have this effect upon the capillaries, whether used locally or constitutionally.

The action of alcohol in chronic alcoholism causes transfusion of blood from the arterioles into the capillaries. Destruction of the capillaries is not mentioned, but destruction of patient is.

A systemic disturbance of the blood may cause pyorrhea alveolaris, together with a local irritation, or, may form abscess through infiltration. We may have to destroy a pulp, or it may die of the result of strangulation. If left to putrify, we have an abscess by infiltration of the putrescence and hyperemia galore from the irritation. Hyperemia and its results on the surface of the gums may cause a deep-seated abscess of the process, or the bones of the jaws by infiltration, and resorption.

Talbot says, in substance, what concerns the dentist most in arteritis diseases of the gums, etc., "Is the fact that the alveolar process is a transitory structure and is hence subject to atrophy and disease." This is due to the fact that the structure is an end organ, the nerves and blood vessels approach a blank wall.

The root of the tooth is virtually a foreign substance. The blood-vessels and nerves concerned are, approximately, end organs and are effected by both *local and constitutional causes*.

Neuralgia is the cry of the nerves for more nutriment through medullary influence or good blood supply. Lesion caused by accident to the arteries or nerves are common. The nerves of course being the complainants, and the neuralgic pain is confined to one side at a time.

We have a class of patients, who belong to the practicing M. D. or specialist on nervous diseases and should not have been called into this paper except to show the effect of dental diseases.

These patients come to us sometimes from their family physician, and should have our most kindly attention as dentists. We have a chance to note their condition, and often they volunteer information in regard to their cases. We become anxious for their recovery, and bring out our books and use up some brain-cells for the good of theory. But if the loss in sensation to dental tissue is in proportion with the number of brain cells I have (if I have any), the more I lose the better for me.

The patients to whom I refer, complain of a pain at the base of the brain. Generally at first it is quite severe, and is often given the name of neuralgia by the patient. Perhaps we find trouble in the teeth; at least we have stopped one irritation in our professional duty.

Hyperemia at the base of the brain, or reflected there, has been complained of by brain workers, or those under prolonged strain, and is easily confounded with neurasthenia. As the blood

furnishes nutriment to the nerves, they draw upon this source. It is given in chronic cases as passive hyperemia. Among those complaining of it under my care, as a dentist, are a judge, who has insomnia and has had it for years, teachers, preachers and business men, generally those who have many cares and are of a sedentary occupation.

Syphilitic consumptives and people subject to senile decay might come under this head.

Sometimes people do not know that there is any trouble. The clot becomes organized and forms a thrombus and perhaps paralysis is the result. This could become disorganized and thrown into smaller arteries, affecting the motor or fifth nerves, thus depriving them of a part or all of their functions as in embolism.

The patients, who are paralytics, are not hard to diagnose as such. I have had several of a hypersensitive kind, where the shock was slight. They complained of the head-rest striking a sore spot at the base of the brain, or if the shock is on the right side, I have had two cases where they complained of a sore spot about where your left arm rested over the head perhaps due to the nerves crossing *at* or *near* the base of the brain, and manifesting its location at that part of the brain.

Surely *this* crossing is a wise provision of nature.

A case over which I have worked for about fifteen years, has excited my interest: Doctor B., a retired doctor, had a slight shock of the right side from senile decay (so he thinks). After the shock, his teeth on that side (all having live pulps) began to trouble him. I extracted three, after trying in vain to get treatment to the pulps. These were sound teeth, and he begged me to remove them. I did so at intervals of several hours. The next offender was a lower tooth. I put pressure anesthesia on the pulp and removed it, then cared for the tooth to the best of my ability.

The upper teeth are beginning, three are involved, in which I am killing the pulps at present; the pain has subsided. The hypersensitive state of the nerves is very marked. He complains of a very sensitive state of the lips, palm of the hand, and center of the foot, when touched. He and I have called this case hypersensitivity of the nerves of sensation, while the motor nerves are affected, due to senile lesion. I am told it is a rare case.

I have had some trouble with paralytic patients wearing

dentures, the immobility of the tongue being one drawback in keeping an upper plate in place.

I am indebted to Dr. H. B. Butler, dentist of the New York State Asylum, who has great opportunities to study hyperemia in brain ills and their effect upon the peridental membrane. The letter is as follows:

OGDENSBURG, N. Y.

MY DEAR DOCTOR:

In reply to yours of 12th, would say that facial neuralgia is seldom observed among the insane.

There are so many different types that I cannot answer in detail. Generally speaking, however, I find almost a total indifference among the patients. A tooth that would give all kinds of trouble in private practice, appears to be passive at the hospital.

Think you can safely say that any hyperemia in brain ills would result in a loss of sensation in dental tissue in proportion to the degree of degeneration of brain cells.

Even in our most violently disturbed patients, those having delusions, I find almost no appreciation of the pain accompanying extracton. Sometimes it is very difficult to induce them to sit in the chair, but afterward examination or extraction produce about the same resistance. I have several patients who come frequently desiring extraction of sound teeth, the sensation being one they seem to desire.

Of course there are exceptions to the rule. I think those insane as result of some injury to the skull are more sensitive to pain along the dental nerve than the normal person.

Extreme cases of alveolar abscess are common of course, but in many instances pass unnoticed by patients.

Red stain, said by Kirk to be characteristic, is met with very rarely and found oftener in private practice.

Hoping this may be of some service, I am truly yours,

H. B. BUTLER.

I have made some inquiry in regard to our asylum at Newburgh, and find that they have very little work for a dentist. The report, however, is very nearly the same. The New York asylum is much larger.



GOLD FILLING.*

BY H. H. HARRISON, D. D. S., WHEELING, WEST VIRGINIA.

Filling teeth is perhaps the most prominent and important work of the practicing dentist today, owing to the fact that caries is the most common lesion found in the oral cavity and filling is the only recognized remedy for the disease.

We have six materials used for the filling operation, all of them valuable when properly used. It becomes a matter of judgment in the operator as to which shall be used in any given case. The question may be presented to our minds, in the selection of the material, not only as to which will be the most durable, but which will be the most appropriate considering the condition of the tooth as well as the patient. We must all recognize these varied conditions and operate with prudence, sagacity and good common sense. But the special problem to be considered just now is to measure the value of gold in comparison with other fillings. My reason for this is the fact that there seems to be a growing tendency among many operators to substitute other filling for gold when there is no good reason for doing so. This is doubtless due to two reasons: First, because the application of gold is more painful to the patient, and second, because it is more laborious to the operator. Both good reasons in themselves, but not strong enough to outweigh a dentist's duty or judgment or the patient's permanent welfare. And especially is this true when we consider the fact that the great majority of teeth requiring fillings are medium in size, and will not inflict great pain; neither should they be a great strain on the operator's nerves. Not only this, but considering the pain to the patient, at least half of this is over-past when the cavity is prepared for any kind of a filling.

It has been said that of all the materials that we use to fill teeth gold is the poorest. I don't believe it, but can readily believe that the author of such statement was an expert plastic operator and a poor gold manipulator. Again, it has been said that the average life of a gold filling is only three years. This I don't believe, either. Have been a close observer, within a limited area, for over thirty years, and would place the average

*Read before the Odontological Society of Western Pennsylvania, March, 1905.

at ten years, and by first-class operators at not less than fifteen years.

Let us consider for a few moments the requisites of a good and saving filling. No filling is good unless perfect adaptation can be accomplished. It must be pure that disorganization may not follow. It must be dense or disintegration will take place. It must be hard or it will not withstand mastication. Lastly, it must have a shade that will not detract too much from personal appearance. Now which one of the above mentioned materials will most fully fill the requirements that have been spoken of in the majority of the teeth we fill? Gold has stood the test, absolutely, of centuries, as recent discoveries have proved.

But within our recognized history gold has saved more teeth than any other material. It can be adapted to all parts of a cavity so perfectly, that by the stimulus of the mallet or hand pressure it is almost forced into the tubuli of the teeth, making what might be termed perfect adaptation. It is so pure that it is not affected by any oral secretion nor by any foreign substance that can be taken into the mouth, and hence cannot be disorganized. It can be made almost as dense as though it were melted and poured into the teeth, so it is impossible for it to disintegrate. It can be made so hard that it will withstand any ordinary pressure as connected with mastication. Its color, while not all that could be desired, is not a serious objection in the cavities of medium size. Indeed the tirade that is hurled against gold to-day on account of its color is largely due to its misuses in large contour work and crown and bridge-work. Its color is not a serious objection when it is properly used.

'Tis true the filling of a tooth with gold involves a little more pain and time for the patient, and strain for the operator, but in view of the great good it has done, and its prospective future by the expert operators who are coming to the front, we ought to go very slow in substituting other fillings in its stead. Of course we all want to save our patients pain and ourselves unnecessary labor, yet this should not be done at the expense of the teeth or the patient's permanent good. Now while I am a strong advocate of gold where it can be properly used, am not averse to the proper use of other filling, for I use them all, but my main object in this paper is to ask you to stop and think for a moment before you lay gold aside for any other filling.

I fully recognize the fact that many gold fillings are defective,

but that is no fault of the gold. These defects seem to creep into everything in life. Most undoubtedly gold has a saving quality not equaled by any other material thus far satisfactorily tested. What may result from porcelain inlays still remains in the future, though many experts have had almost marvelous results. While I am ready to give porcelain a conspicuous place as a tooth saver, yet I fear the enthusiasm developed in many will cause a wreck by and by of enormous proportions, that may carry many a young man to an untimely professional end. I think porcelain has come to stay, and that it is great in some places, but its area of usefulness is very much less than that of gold. Let us go slowly and feel our way until we are ready to exclaim, "eureka."

The weakness of gold fillings in the past (and indeed any other filling) is not the fault of the gold so much, as before stated, as the operator, and think his greatest weakness is in the preparation of the cavity. We hear operators speaking of a leaky filling. Think ninety per cent. of such cases are due to faulty preparation of the cavity. A tooth affected with caries has not only the true decomposed dentin, but alongside is diseased or degenerated structure that must be removed, as well as the perfectly dead part. The enamel adjacent will in many cases be found chalky and yet by a casual glance it seems normal. The expert gold operator is also expert in his preparation, hence the final results. He also uses the kind of gold that suits his manipulative peculiarities, whether it be crystalline or amorphous, sponge or tablets, or plain leaf of the higher or lower numbers, or even cohesive or non-cohesive. Every man must choose for himself. For A to say that B can't make a perfectly good gold filling unless he uses the same gold as A does is a very weak statement. I think that a good operator can make a success with any of the different golds on the market if he is familiar with the material.

Thoroughness in every step should be the great watchword, for a gold filling, like a chain, is no better or stronger than its weakest part. "Extension for prevention" has been a ruling principle with some in later years. It should have been "extension for protection," for it simply involved the principle of the removal of degenerated structure. When a cavity is properly prepared and filled to perfect adaptation with gold, made as solid as it can be made, perfectly finished, that there is no over-

lapping, there is less danger of a return of caries than before the tooth was decayed. Not so with any other filling, for the principle of change is stamped upon every other material, increased by the various characteristics of the oral secretions and the lack of perfect uniformity of materials or failure of judgment in their combination.

Gold, then, is the ideal filling, but there are teeth that should not be filled with gold, owing to the extent of destruction, the physical condition of the patient or other weakened tooth structure. Here we have recourse to cements, amalgam, rubber and porcelain. But where gold can be properly used it should be done in every case, for it is certain in its results, and has done more in the past for the standing of dentistry and the relief of suffering teeth than any other one thing.

The technic in a gold filling varies so much by different operators that it is almost a compromise to even make suggestions.

Every man has his own preferenene in gold and instruments, as well as his main plan of operation, and it would be presumption in me to say he is wrong in any of his special work. This one thing I shall venture to say: That if you find operations made by another that suits you better than your own, copy them and make his way your way. By this plan we may all place ourselves in line with the best.

DISCUSSION.

DR. O. L. HERTIG: If the essayist is as skillful a practitioner, as he is skillful in the way in which he handles his subject, he is certainly an expert.

A great painter when asked what kind of paint he used, said "brains." If a dentist were asked what he filled teeth with, he would not use the term "brains," but he might say "judgment." And a man, if he does not use judgment, has no success as an expert.

The trouble with our men has been, that about ninety per cent. of them have been searching for some easy way to fill teeth. The market is overflowed with all shapes and kinds, from the heavy foil to the light foil.

Porcelain has supplied a long-felt want; yet the man who says that porcelain is going to supercede gold is making a very foolish assertion.

DR. M. S. BURNS: So far as gold is concerned as a filling material, I feel oftentimes the force of what Doctor Flagg said, that in proportion as teeth get soft, gold is the worst material to use. Up to this time, and for a long time to come, I think it is one of the best materials with which to save teeth.

DR. O. L. HERTIG: I agree with the Doctor when he says when you show gold to show gold enough that it may be seen that it is gold and not dirt, but a great many of the cavities can be filled without showing any gold whatever.

DOCTOR WHITEMAN: If Doctor Hertig fills a cavity, and it does show through to the surface with gold, and especially with the enamel walls so thin that the gold will reflect through, he is using a gold filling in an ideal place for porcelain.

Where gold is packed against the enamel walls that are so thin that discoloration is certain to follow, there is an ideal place for a porcelain inlay, because discoloration cannot follow.

DOCTOR TEMPLETON: I am very much pleased with the paper. I don't wish to say anything discourteous about the use of gold, but I don't believe, at the present time, that ten per cent. of the dentists know how to fill teeth with gold.

Now, a new departure has been referred to. One man has said that in proportion as teeth get soft, gold is the worst thing to use. I know that man, and I saw him put in a gold filling, and he undertook to do it in two minutes. I timed by the watch, and he actually stuffed it in in two minutes. What was the result? In one month there was no gold left in that tooth.

Only a few weeks ago it was my misfortune to lie in the hospital, and while there a number of persons came to see me, amongst them a man for whom I had done some work, and I was surprised to have him point to a tooth I had filled thirty-five years ago for him. I remember of filling those teeth; I remember the time it took to do it, and the pain I endured. I know that no man can learn to fill a tooth in a few days, weeks or months. It requires time, perseverance and patience to do it properly.

Another thing, and that is one of the most important things, is to be familiar with the material you use. You must understand the nature of the material, and work carefully.

The subject of the essayist is "gold fillings." I believe in gold fillings, but I don't believe that ten per cent. of the dentists in the United States can put in a good gold filling.

I was asked that question by a dentist in St. Louis about two years ago, that was my answer. One year afterwards he asked me if I remembered the answer I gave him on that subject. "Well," said he, "I have thought about that answer every day since that time." I asked him what was the result. He said, "I don't believe there are that many."

Gentlemen, I don't wish to boast, but if you had stood beside as many as I have of the best operators in this country—I have stood beside men that have great reputations, and I could not help but see that their work was faulty—it would have opened your eyes.

If you have a patient who comes in and says that his teeth are too soft for gold, you can put it down that he has been in the hands of somebody that can't put in a gold filling. Take these soft, chalky teeth of

people who have light hair, light eyes and light eyebrows, and I suppose you would rather not see those people come into the office.

Well, gentlemen, you can all make good gold fillings if you try, and try hard, but if you expect to learn to do it in a day or month, you can't do it. You have to take time and patience, and prepare your cavities properly.

DOCTOR HARRISON: I will not occupy the time further. The only thing I had expected to mention was the technic of the gold filling, should it be brought up, but it has not been, and I shall have nothing more to say in the matter.

CLINICS AT OHIO STATE DENTAL SOCIETY.

REMOVABLE BRIDGES.

Dr. Fred A. Peeso, Philadelphia, Pa., demonstrated different methods of restoring missing teeth by inserting removable bridges, and also different styles of anchorage or abutments for removable work. The first and most common of these attachments was the telescope crown, consisting of an inner cap, telescoping a perfectly fitting outer cap, to which the bridge is attached.

Among several specimen cases shown was one where the three lower left molars were missing, and had been restored by the use of an extension saddle, the two bicusps serving as supporting or retaining abutments and carrying telescope crowns.

In two cases, an upper and a lower molar, carrying telescope crowns, the mesial end of the bridge was supported in the upper with a tube and split pin in the canine, and in the lower with the canine, and which had been grooved and countersunk to receive it.

In restoring a missing central incisor in the upper mouth the remaining central had been devitalized, and an iridio-platinum tube inserted. This carried an accurately fitting split pin which was bent, and attached to the central dummy. The distal side was supported by a spur, resting in a countersunk filling in the lateral.

In a case showing an inlay attachment in a lower molar the natural crown of the tooth was preserved. The molar was devitalized, and a gold inlay with a tube extending through it to the bottom of the pulp chamber was inserted. The inlay was grooved from the tube to the mesial side, and a split pin fitted

to the tube and in the groove, and attached to the bridge. The mesial end was supported by a spur in a gold filling in the bicus-pids.

One case showed the inlay as connected with a gold crown.

A TREATMENT FOR DISEASED PULPS.

Dr. Gillette Hayden's clinic consisted of treating diseased pulp as follows:

<i>Liquid.</i>		<i>Powder.</i>
Eugenol,	$\frac{1}{2}$ oz.	Oxide of zinc.
*Black's 1, 2, 3,	$\frac{1}{4}$ oz.	
Oil of Cloves,	20 drops.	
Oil of Cassia,	15 drops.	
Oil of Cinnamon,	15 drops.	

The liquid (composed of the essential oils for the most part), and the powder (the pure oxide of zinc), are mixed together to form a stiff paste or cement which may be used in any case where "toothache" is caused by a *diseased* but *living* pulp.

By placing a filling of this preparation in the cavity of an aching tooth, almost an immediate cessation of pain is secured, as the medicaments in the formula act as obtunders, at the same time relieving the congested condition.

In cases of acute pulpitis, especially where the pulp is exposed by caries, it is not necessary to remove the decay entirely, before placing the filling.

The cement is slow to harden and will not stand the force of mastication for a few hours, but it will not wash out, either before or after hardening.

As long as the active agents in the cement exert their influence over the pulp, there will be no pain or discomfort to the patient and the pulp will return to as nearly a normal state as is possible under varying conditions.

METHODS OF NAPKINING.

The clinic of Dr. S. J. Rauh was a demonstration of the various methods of napkining, more particu-

*Black's 1, 2, 3 is composed of:

1 part Carbolic acid (melted crystals).

2 parts Oil of cassia.

3 parts Oil of wintergreen.

larly those of Dr. J. Foster Flagg. It would be almost impossible to describe them, except in a lengthy article, and as it is more or less a repetition of things that have gone before, do not consider it of sufficient general interest. If this answer is not satisfactory I will be pleased to send a more comprehensive one upon your request.

A NEW METHOD OF MEASURING HEAT OF ELECTRIC OVENS.

Doctor Custer demonstrated a new method of measuring the heat of electric ovens. The Nernst lamp glower, which has a wide range of resistance which varies with the degree of heat, was used as the operative agent. An ordinary compass, placed on a solenoid will measure the current flowing and at the same time the heat of the oven. His new No. 8 oven, which gives a perfectly even heat in all parts of the muffle, was also demonstrated.





CORRESPONDENCE

AIROFORM.

Believing the following letter and its reply may be of interest to readers of THE SUMMARY, we have taken the liberty of publishing them.—[Ed.]

Dr. A. C. Hewett, Chicago, Ill.

DEAR DOCTOR: I wrote you some time ago in regard to "Airoform." Have not as yet been able to secure it, as the apparatus for administering same is not ready for the market.

Now, Doctor, you know the formula of this anesthetic. I do not, neither shall I ask you for it, but I want to ask you this: Should any untoward symptoms occur, what would be the symptom? And how would you meet it; that is, what would you administer as an antidote? I have always been afraid of all the so-called local anesthetics, especially those containing "cocain." I am "shy" of them. I have great confidence in what you say of "Airoform," and shall accept you as authority. Do you consider it perfectly safe for any and all patients?

Thanking you in advance, I remain,

Your friend,

Smithland, Ky.

G. L. CRAWFORD.

Dear Doctor Crawford:

In reply to yours of the first of May, inst., I will say:

Since writing the article for THE SUMMARY, I have passed the letters concerning "Airoform" to Messrs. Ransom & Randolph, of Toledo, Ohio (514-16-18 Jefferson avenue). There have been so many letters that I could only in that way do justice to correspondents and to myself. Your letter, however, appeals to me for personal answer beside sending to them.

The answer to your first question fully given would cover the whole ground of *maladministration*, and idiosyncrasy on the part of the operator first, and then on the part of the patient. Any anesthetic potent for sleep production, if given too rapidly at first would produce *resistance* to further inhalation, coughing, strangling and hands up to push inhaler away, turning red (at first in the face), a sort of shivering shudder of the entire body from *shock* of the vapor, followed by rapidly approaching—almost instantaneous—death, and a gray palor settling on the face not to be mistaken after the flushing passed away. These must naturally, I assume, be the untoward results. This is guessing, however, as to airoform. So far there have been no deaths or symptoms of danger from Airoform. Its very make-up, unless given with criminal recklessness, prevents the possibility of such a result. When a collapse comes thus *at first* from other anesthetics, no antidotes or treatments have ever availed. It is speedy surrender and *death*.

The first danger point passed, there is *safety* till “hyper-anesthesia” is reached. Then the patient ceases to breathe, first; next, the heart ceases its beating. In case breathing ceases, the drug should be removed, artificial respiration applied, hypodermic stimulation, and rectal dilation, ~~fore-fir~~ and rapid respiration resorted to, suspending the body, head down, slapping chest, front and back vigorously, compression (sudden) of thorax, etc.; best of all, *never* carrying the anesthesia so far. To save shock, primary and secondary is better.

No one *should ever* attempt to produce full anesthesia till first fully educated in analgesia. See definition of that term, Dunglison's Medical Dictionary, 21st Ed.; that term page 55. See also my articles in *American Dental Journal*, May, June, July and September, 1903.

You do well to fear “local anesthetics,” though could I see you, and find you as intelligent and earnest as by your letter I am impressed, I think I could talk you into assurance of safety with a formula, and *technic* I would describe.

“Do I consider it perfectly safe, etc.?” Yes, if skilfully given; with the inhaler designed for it. In other words, I believe it safer than chloroform; preferable, though the latter has been my hobby, study, delight for fifty-seven years. I was fascinated with it before I gave it. For years I have not had the slightest hesitation with chloroform, and the more than twenty thousand

times of safely giving it affords convincing evidence of *its* safety. Pharmacologically there are elements of safety contained in "Airoform" not carried in the elements of any other anesthetic. Still further instruction should be had ere it should be used, and then only surrounded with skill, caution and untiring watchfulness, and a thorough knowledge of analgesias and their potencies, limitations and tendencies.

A. C. HEWETT.

Chicago, Ill.

A CASE IN PRACTICE.

I take great interest in reading these articles, and having read Dr. O. B. Kneisly's article showing the shiftlessness of physicians, I wish to relate a case similar to his: Mrs. S., age 45, came to me with an aching lower-right first molar. She said it was crowned 12 years ago. I told her that I would either have to remove the gold crown and treat the tooth, or extract it. She decided on extraction, and in the presence of her husband, I administered gas and extracted it. I found the roots had a greenish covering on them. This was on Saturday evening, and I told her if her face was the least bit swollen in the morning to return immediately and that I would be at my office until noon. She did not return until Monday a. m. She had a very swollen face. I told her that I would like to have her family physician on the case. When he called up later by phone, he said for me to be at her house at 4 o'clock sharp. He came at 4:30. We were to administer chloroform and I was to lance it. The swelling extended one inch below the eye and way down side of neck. To show shiftlessness of the physician, I asked him if he had a lance. He said, "Oh, I guess I can find one in my grip." He did not find one, but I had mine. Then I asked him if he had anything to sterilize the lance with. He had not even alcohol, but I had carbolic 95%, which I used. He was supposed to be a very competent physician and had an extensive practice. When the patient was under the anesthetic, I made three incisions, lancing from the inside, using digital pressure with left hand on the outside. There flowed from these incisions pus, blood and serum. The

odor was unbearable. He said I was to take care of the case, and told me to give her Jamaica dogwood one-half teaspoonful every half hour. The patient complained of bad taste in her mouth and I prescribed lavioris as a mouth-wash. I found out that he had called to see the case three times before I was called. I then called twice a day for two days, and finding patient sitting up in parlor the last time I called, she discharged me from the case, saying she did not need my services any longer. The physician continued to call twice a day for two weeks, but did no more than look at the outside of the face, and said it was doing fine. He did not get drainage and keep the tract aseptic by syringing, then packing gauze in the wounds, and it continued to flow for two weeks after it was lanced. Finally it healed for a while, then broke out again, then healed, leaving a hard lump under the maxilla, which later was diagnosed as a small tumor. Dr. A. H. Ferguson operated and removed it. Just one year after I extracted the tooth, the patient was visiting in Canada, when her face swelled up again, and being lanced again discharged one pint of pus. So far she has had no more trouble, but had her physician treated it properly in the first place, all her trouble would have been averted. The physician called twice a day for two weeks and charged her \$2.00 a call. It was a "hold up," for he did her no good. I write this article to show the negligence of some physicians.

Dixon, Ills.

F. R. MERZ, D. D. S.





DENTAL LEGISLATION

AN ACT TO REGULATE THE PRACTICE OF DENTAL SURGERY AND DENTISTRY IN THE STATE OF ILLINOIS AND TO REPEAL AN ACT THEREIN NAMED.

SECTION 1. *Be it enacted by the People of the State of Illinois represented in the General Assembly:* That a Board of Examiners, to consist of five practicing dentists, to be known as the Illinois State Board of Dental Examiners, is hereby created, whose duty it shall be to carry out the purposes and enforce the provisions of this act, as hereinafter specified. The members of said board shall be appointed by the Governor, and at the time of their appointment upon said board must be actual residents of the State and must have been, for a period of five years or more, legally licensed to practice dentistry or dental surgery in this State: *Provided, however,* that no person shall be eligible to appointment to said board who is in any way connected with or interested in any dental college or dental department of any institution of learning. The term for which the members of said board shall hold office shall be five years: *Provided,* that the members of the dental board, in office at the time of the passage of this act, shall be permitted to serve out their respective terms of office for which they were appointed, and until their successors shall be duly appointed. In case of a vacancy occurring on said board, such vacancy shall be filled by the Governor, as herein provided.

SECTION 2. Said board shall choose one of its members president and one secretary thereof, and it shall meet at least once in each year, and oftener, if necessary, in the discretion of the board, and at such time and places as it may deem proper. A majority of the members of said board shall, at all times, constitute a quorum, for the transaction of the business of the board, and the proceedings thereof shall, at all reasonable times, be open to public inspection.

SECTION 3. No person, unless previously registered or licensed to practice dentistry in this State at the time this act shall become operative, shall begin the practice of dentistry or dental surgery, or any branches thereof, without first applying for and obtaining a license for such purpose from the Illinois State Board of Dental Examiners. Application shall be made to said board in writing, and shall, in every instance, be accompanied by the examination fee of twenty dollars (\$20), together with satisfactory proof that the applicant is of good moral character and

twenty-one years of age or over at the time of making the application. Application from a candidate who desires to secure a license from said board to practice dentistry or dental surgery in this State shall be accompanied by satisfactory proof that the applicant so applying for a license has been engaged in the actual, legal and lawful practice of dentistry or dental surgery in some other State or country for five consecutive years just prior to application; or is a graduate of and has a diploma from the faculty of a reputable dental college, school or dental department of a reputable university; or is a graduate of and has a diploma from the faculty of a reputable medical college or medical department of a reputable university, and possesses the necessary qualifications prescribed by the board. When such application and the accompanying proofs are found satisfactory, the board shall notify the applicant to appear before it for examination at a time and place to be fixed by the board. Examination may be made in whole or in part, orally or in writing, at the discretion of the board, and shall be of a character as to test the qualification of the applicant to practice dentistry or dental surgery. All examinations provided for in this act shall be conducted by the board, which shall provide for a fair and wholly impartial method.

SECTION 4. Said board of dental examiners shall make rules or regulations to establish a uniform and reasonable standard of educational requirements to be observed by dental schools, colleges or dental departments of universities and said board may determine the reputability of those by reference to their compliance with said rules or regulations.

SECTION 5. Any person shall be regarded as practicing dentistry or dental surgery within the meaning of this act who shall treat or profess to treat any of the diseases or lesions of human teeth or jaws or extract teeth, or shall prepare and fill cavities in human teeth or correct the malposition of teeth or supply artificial teeth as a substitute for natural teeth; *Provided*, that nothing in this act shall be so construed as to prevent regularly licensed physicians or surgeons from extracting teeth. Further, this act shall not prevent students from performing dental operations under the supervision of competent instructors within a dental school, college or dental department of a university recognized as reputable by the Illinois State Board of Dental Examiners.

SECTION 6. Any person licensed to practice dentistry or dental surgery in this State by the Illinois State Board of Dental Examiners, as hereinbefore provided, shall personally, and within ninety days from date of issue, cause such license to be registered with the county clerk of such county or counties in which such person desires to engage in the practice of dentistry or dental surgery, and the county clerks of the several counties of this State shall charge for registering such license a fee of twenty-five cents (\$0.25) for each registration. And it is hereby provided further that any person who engages in the practice of dentistry or dental surgery in this State shall cause his or her license to be registered with the county clerk before beginning the practice of dentistry in said county, and to be at all times displayed in a conspicuous place in his or her office wherein he or she shall practice such profession, and shall further, whenever requested, exhibit such license to any of the members of the said board or its authorized agent.

SECTION 7. The board may refuse to issue the license provided for in this act, or may revoke such license if issued to individuals who have, by false or fraudulent representations obtained or sought to obtain practice, or by false or fraudulent representations obtained or sought to obtain money or any other thing of value, or have practiced under names other than their own, or for any other dishonorable conduct. The board, when written charges have been filed with its secretary and seem sustained by proof, shall fix a time and place for the examination of a person so charged and shall give written notice to the said person of the time and place and furnish him with a copy of the charges at least twenty days prior to the date fixed for the examination.

SECTION 8. Any failure, neglect or refusal on the part of any person obtaining a license to practice dentistry or dental surgery from the said board to register such license with the county clerk of some county in this State, as above directed, within ninety days from the date of issue of the same, shall work a forfeiture of such license, and no license, when once forfeited, shall be restored except upon payment to the said board of the sum of fifteen dollars (\$15) for such neglect, failure or refusal to register such license and the surrender of forfeited license.

SECTION 9. In order to provide the means for carrying out and enforcing the provisions of this act, the said board shall charge each person applying to it for examination for a license to practice dentistry or dental surgery in this State an examination fee of twenty dollars (\$20), and in addition thereto a license fee of five dollars (\$5.00), for every license or duplicate issued by said board, and out of the funds coming into the possession of the board under the provisions of this act the members of the said board shall each receive as compensation the sum of ten dollars (\$10) for each day actually engaged in the duties of the office and all legitimate and necessary expense incurred in attending the meetings of the said board; *Provided*, that the secretary of the board, for the purpose of enforcing the provisions of this act, shall receive a salary to be fixed by the board, instead of the per diem of ten dollars (\$10). All expenses shall be paid from the fees, fines and penalties received and recovered by the board under the provisions of this act; *Provided* that no part of said expense shall be paid out of the State treasury. All moneys received in excess of said per diem allowance and other expenses herein provided shall be held by the secretary of the said board as a special fund for meeting expenses of said board, and said board shall make an annual report of its proceedings to the Governor on the 15th day of December of each year, together with an account of all moneys received and disbursed by them pursuant to this act.

SECTION 10. Any person filing or attempting to file as his own the diploma or license of another, or a forged affidavit or identification or qualification, shall be deemed guilty of a felony, and upon conviction thereof shall be subject to such fine and imprisonment as is made and provided by the statutes of this State for the crime of forgery.

SECTION 11. Any person who shall practice dentistry in this State without being registered or without a license for that purpose, or violates any of the provisions of this act, shall be subject to prosecution before any court of competent jurisdiction upon complaint, information or indictment,

and shall, upon conviction, be fined for each offense in any sum not less than fifty dollars (\$50) nor more than two hundred dollars (\$200). All fines imposed and collected under this act shall be paid to the Illinois State Board of Dental Examiners for its use.

SECTION 12. All licenses issued by the said board shall be signed by all of the members thereof and be attested by its president and secretary.

SECTION 13. An act to insure the better education of practitioners of dental surgery and to regulate the practice of dentistry in the State of Illinois, approved May 30, 1881, and in force July 1, 1881, and all other acts and parts of acts amendatory thereto, are hereby repealed; *Provided*, however, that such repeal shall in no wise affect any suit, prosecution or court proceeding pending at the date of the passage of this act.



AFTERMATH

PERSONAL AND MISCELLANY.

Married.—Dr. S. S. Mummery, Big Rapids, Mich., was married June 7th to Miss Edna L. Frink of St. Johns, Mich.

Will Visit America.—Dr. W. D. Miller, Berlin, Ger., contemplates making a visit in the United States again during the summer.

New Dean.—Dr. Alfred Owre has been appointed Dean of the Dental Department, University of Minnesota, vice Dr. W. P. Dickinson, resigned.

Northern Indiana Dental Society will hold its next meeting in Logansport, Ind., September 19 and 20, 1905. F. M. Bozer, secretary, Logansport, Ind.

Dr. G. S. Junkerman Honored.—At the annual commencement of the Ohio University, in June, the honorary degree of Master of Arts was conferred on Dr. G. S. Junkerman, of Cincinnati.

Nebraska State Dental Society Officers-Elect.—President, Dr. A. Hugh Hipple, Omaha; vice-president, Dr. E. Arthur Meservey, Kearney; corresponding secretary, Dr. M. E. Vance, Lincoln; recording secretary, Dr. N. H. Morrison, Red Cloud; treasurer, Dr. H. T. King, Fremont; member board of censors, Dr. G. L. Beeson, Beatrice.

Northern Ohio Dental Society Officers.—The following were elected for the ensuing year: President, Dr. H. L. Ambler, Cleveland; vice-president, Dr. J. R. Owens, Cleveland; corresponding secretary, Dr. D. H. Ziegler, Cleveland; recording secretary, Dr. J. K. Douglas, Sandusky; treasurer, Dr. D. A. Allen, Toledo. The visitors and their friends were entertained at Luna Park and were banqueted at the Hotel Euclid.

Efforts Made to Dispose of Doctor Evans' Estate.—At a meeting of the trustees of the Dr. Thomas W. Evans Dental Institute and Museum, which is to be established in West Philadelphia, held in June, a communication was received and read from Assistant City Solicitor Joseph W. Catharine, who is in Paris, looking after the affairs of the estate located in France. In his communication, Mr.

Catharine stated that he had held several conferences with the French trustees, and that every effort was being made to dispose of the French possessions, which are valued at over \$1,000,000. It was also stated at the meeting that the realty belonging to the state located in New York City and State had not yet been sold.

Arab Sheik Proud of His Artificial Teeth.—Khartoum is now entertaining a picturesque visitor in the person of the Sheik Mahommed Ali Omar Or, head of the Genilab Arabs. He is a fine old man of 90 years, whose snow-white hair and eyebrows present a strange contrast to his long, sweeping beard, dyed a vivid red. His influence around Suakin is paramount, and it was chiefly due to him that Osman Digna was captured. Among other presents he has received is a set of false teeth, the work of a clever Khartoum dentist. With these the old Sheik expects to amaze his tribe when he returns to their midst, though he has his misgivings. "God gave me teeth, and took them away when I grew old. He knows best," moralized the old man, who is, nevertheless, very proud of his teeth.

Cosmopolitan New York.—A young Western dentist who is assistant to a dental surgeon uptown had the cosmopolitanism of New York thrust forcibly upon him the other day says a newspaper of that city. An elderly Greek, accompanied by his young son, came into the office to have some work done. The youngster spoke a few words in English which the dentist took to mean that the father would take the chair first.

The dentist examined the old man's mouth and then looked at him helplessly. He wanted to ask him whether he wanted bridge-work or plate, but he could not make himself understood. Knowing that most foreigners speak more than one language he called in the other dentist, who speaks French. In English he told his professional brother what was to be done; in French the man translated it to the boy, who in turn told his father in Greek. The reply came back by the same route.

Appendicitis and the Teeth.—Smokers have found a scientific champion in Prof. Symes Thompson. Lecturing at Gresham college on "The Teeth in Disease," he said he had not been able to discover that bacteria had any particular objections to nicotine, but he had found that smokers were often more careful about cleaning their teeth, and because of that smoking might be commended. Touching upon other topics, he said there were evidences which showed that during the progress of Roman civilization the increase of caries in the teeth rose from 3 to 37 per cent., and there were also evidences discovered of marked deterioration as the result of civilization in the Egyptian mummies of 4,000 to 6,000 years ago. The organisms found in a decayed tooth were also found in the appendix, and there was good reason to believe that neglected teeth were largely responsible for the increase of appendicitis.

The Dentist and a Shattered Theory.—With our friend, the dentist,

we sit in his reception room at a window which commands a view of the street. "People are peculiar," he says. "Now, for instance, see that man across the street looking at my sign. Ten to one he has the toothache, but is hesitating over whether or not to come in and be treated. See, he is coming across now. The chances are he will stop at the door, turn about and go away, as his pain will vanish before the fear of possibly suffering greater pain in my chair." The man comes across the street, looks once more at the dentist's sign, then turns to go away, as he had predicted. "What did I tell you?" he asks. "It works that way in ninety-nine cases out of a hun— Hold on. He's coming in after all." The man has returned and now enters the reception room. "Is Dr. Yankemout in?" he asks. "Yes, sir," replies our friend. "I am he." "Well, I've got this little account against you from the laundry. I wasn't sure this was your place at first, as I am a trifle nearsighted."

Is the Tooth-brush Objectionable?—We must throw away our tooth-brushes, if we take the advice of Dr. E. Palier, who writes in *The Dietetic and Hygienic Gazette*. Dr. Palier reminds us that the mouth is teeming with microbes eagerly waiting a chance to invade the system, and their chance comes when there is a lesion of the membranes of the mouth. Many diseases, he says, not only local diseases, but systemic infectious diseases as well, are frequently caused primarily by local infection of the mouth. The tooth-brush, too, is charged with micro-organisms and is seldom, if ever, properly sterilized. Even though it were sterilized, however, the danger of using it would still be great, for the stiff hairs frequently cut the gums and thus make a breach for the microbes lurking in the mouth. Nor, according to Doctor Palier, will antiseptics for the mouth save us, for it is practically impossible to sterilize a cavity so full of nooks and corners. The ordinary mouth-washes and powders, he asserts, are hardly strong enough to have any effect on bacteria. In addition, the tooth-brush frequently causes local irritation and painful gums. Such a case recently came to his office, the patient complaining of extreme tenderness of the lower gums, which entirely disappeared on discarding the tooth-brush. He believes that the greater prevalence of affections of the teeth in this country as compared with Europe is due to the tooth-brush, which is more frequently and vigorously used here than anywhere else in the world. "To see a middle-aged or even young person in this country with healthy teeth is a rarity; even young ladies of 18 usually expose to sight one or more artificial teeth made of gold." As a substitute for the tooth-brush Palier recommends aseptic absorbent cotton, a piece of which can be used and thrown away. This, he admits, is an awkward method, but is better than dying. He has nothing to suggest, however, as a substitute for the shaving-brush, which he pronounces eminently dangerous to health. There is nothing to do, therefore, but go unshaved unless we can find some authority as respectable as Dr. Palier to contradict him and assert that tooth-brushes and shaving-brushes are preservatives of health. Doubtless it would not be hard to find such an authority.

THE DENTIST'S REWARD.

BY H. O. BARNES, D. D. S., LOWELL, MICHIGAN.

A Dentist died: His new freed soul
 At once took upward flight.
 St. Peter met him at th' gate,
 And spake, "Sir, pause and write

"Thy history, thy name, address,
 E'er ye may enter here,
 For all who enter thus must prove
 To me their title clear.

"What hast thou done for lowly man
 Upon yon verdant earth?
 What hast thou done to ease their woes?
 Come man, speak up! thy worth."

Th' Dentist wrote his name, address,
 Then spake, "Most Holy Man,
 To ease th' pains and woes of life
 I've done th' best I can.

"My life has been one thankless task,
 I've toiled and failed to please.
 Th' people there do naught but howl,
 And kick on paying fees.

"I am a Dentist, worn and tired,
 Full heavy was my lot;
 Kind Sir, I ask you give me rest;
 Ah, Sir, refuse me not."

St. Peter frowned and spake these words,
 "I know thee as of old,
 Full many shrieks and yells have come
 Unto this Place of Gold.

"Thou art th' man whose very name
 Strikes terror to th' breast.'
 I marvel much thou hast th' nerve
 To come here seeking rest.

"Know ye that Heaven is a place
 Where man forgets his woe;
 There is a place for such as thee;
 Depart ye, then below."

St. Peter turned and shut th' gate.
 Th' Dentist sighed, "Alas!
 'Twere thus my efforts were in vain."
 Thus musing, on he passed.

* * * * *

Footsore and weary, soon he came
 To that drear other place,
 Prepared to harbor numerous souls
 Of this cruel, wicked race.

THE DENTAL SUMMARY.

"Leave Hope behind who enter here,"
 Th' doorway legend read.
 Th' Dentist, weak and worn and tired,
 Meekly bowed his head.

"Leave Hope behind," "What Hope had he?"
 He murmured once again.
 A Dentist, poor, misunderstood,
 And feared by fellowmen.

And while he stood, th' gates swung out,
 A Being came and said,
 "My friend, why standest thou without?
 Why not come in instead?"

Then spake th' mournful Dentist,
 "Sir, I am tired and weak,
 I've traveled far since early morn,
 And fain would rest and eat."

"Quite welcome, thou," th' Being said,
 "So cease your weary quest.
 Whom shall I tell His Majesty
 We have this night as guest?"

"I am a Dentist," he replied,
 "I seek this unknown life,
 Weary, footsore, ill at ease
 From yonder earthly strife."

"A Dentist! Whoop!" th' Being cried,
 "What luck. Your just th' kind
 His Majesty's been lookin' for
 An' pictured in his mind.

* * * * *

"His Majesty will see you now,"
 Th' Being later said.
 And straightway then th' Dentist
 Into a hall was led.

Upon a throne as black as night
 A smile upon his face,
 Th' Prince of Darkness, Woe and Sin
 Lounged with an easy grace.

"What, Ho!" he cried, "Whom have we here?
 What mortal soul is this?
 And, too, you say he asks for rest
 In this dark, grim abyss!"

Th' Dentist spake, "Your Majesty,
 I pray you hear me out;
 Since my decease I've rudely been
 Jostled and pushed about.

"At first, all through my earthly life,
 Good words to me none gave;
 I've gone unhonored and unsung
 Unto my lowly grave.

“St. Peter at th’ Heav’nly gate,
E’er I had had my say,
Gave me th’ cold and icy stare
And urged me on my way.

“I am a Dentist, worn from care—”
“A Dentist! did you say?
Ho! Imps and Devils, blow your horns,
We’ll merry be this day!

“For I have found my heart’s desire,
This Dentist! Brother mine,
Speak up and aught within my power
Thou wishest, shall be thine.

“Lo, many ages have I sought
A vacancy to fill.
In yonder working courts of mine.
Hast thou thy engine drill?

“Hast thou thy engine, too, itself?
And chisels by th’ score?
And excavators, lances, probes,
And all these things galore?”

“Aye, Sire, I truly have them,
They’re locked within my chest;
I’ll give them all, your Majesty,
Can I but have some rest.”

“Rest thou shalt have,” th’ Prince replied,
Upon yon couch recline;
Imps, haste and bring th’ choicest meats,
We brothers now will dine.

“My brother, dear,” th’ Prince went on,
“You know it seems to me
That you and I must be of kin.
How doth it seem to thee?

“No one appreciates our worth;
You’re feared and so am I:
They fear you during earthly life,
They fear me when they die.

“Th’ people claim you love to hurt,
And hear them howl and yell.
No doubt you’ve heard ’em say th’ same
Of me down here in Hell.

“Now, brother mine, I have a plan,
And trust you will agree.
You bring your tools and stuff along,
And go in here with me.

“I’ll guarantee with patients
Your chair to always fill,
And all you’ll have to do will be
To drill and drill and drill.

THE DENTAL SUMMARY.

“Your life’s been hard, I will agree,
But from now on you’ll find
An easy time. Rest on, tired soul,
Rest, on, O, brother mine.”

And so at last, all trouble o’er,
Th’ Dentist gave a sigh,
And as his tired soul sunk to rest,
Said, “Ah, ‘twas sweet to die.”



REGULAR CONTRIBUTIONS

PULP DEVITALIZATION.

BY CLYDE DAVIS, B. S., M. D., D. D. S., LINCOLN, NEBRASKA.

The destruction and removal of the vital pulp should be accomplished,

First: In such a manner as to preserve the present and future health of the adjacent tissues.

Second: With the least possible pain and discomfiture to patient.

Third: With as little loss of time to operator and patient as possible and yet not endanger the health of the peridental tissues.

In studying the clinical history of this operation we find comparatively few distinct methods, yet if we study carefully the entire subject, with particular reference to the technic, we find many methods, some accomplishing all that can be desired, while others either cause temporary or permanent disease of previously healthy tissues, or cause the patient more or less pain and suffering at the time of extirpating the pulp.

As with all else in life, we are liable to follow a rut and establish a routine procedure, attack all pulps with the same armament, forgetful of the fact that this little organ, like the entire organism of which it is a part, is found in many conditions, varying from perfect health to almost complete dissolution as found in the latter stages of "that succession of tissue changes having its origin in active hyperemia and its end in death, due to the presence of bacteria or their products."

It would, therefore, seem rational to suggest that as the conditions presented vary, so vary our methods of procedure, with the health and comfort of the patient always uppermost in our minds.

Space forbids the detailing of a method for each of the many stages found between normal and dead pulps when de-

struction is being brought about as the result of an "itis." Therefore, for brevity's sake, we will divide into three classes only. For sub-divisions the methods may be combined or modified so as to bring about happy results.

First Class: Pulp whose circulatory and nervous systems are yet operative in the coronal portion.

Second Class: Pulp whose circulatory system is active, but whose nervous systems are deficient in development, or in the first stages of neuro-paralysis.

Third Class: Pulp devoid of blood, whose nervous system is yet operative.

It will be noticed that no reference is made in the classification to the existence or non-existence of exposure of pulp. We wish to emphasize this point, as exposure bears no relation to the method of operation, as we are about to detail.

Class 1 contains by far the largest number of cases presented to the dentist, such as normal pulps, devitalization being necessary to subsequent prosthetic work, as well as all of the stages of active and passive hyperæmia.

Such pulps may be removed by the following method, in a very few minutes, and sometimes seconds only, without pain to the patient and are rarely followed by more than barely perceptible peridontitis, it being entirely absent in a majority of cases.

THE TECHNIC.

Have previously prepared a fine drill, which is made by grinding the bur portion entirely off a number one half-round bur, make this small shank into a spade drill.

Next grind off the point of a steel hypodermic needle to within a thirty-second of an inch of its shank, or better reinforcement and bevel end of same with disc.

Adjust this to a perfect-working hypodermic syringe, such as all dentists use for local anaesthesia.

Load syringe with the following:

Three perfectly soluble tablets of cocaine of one-sixth grain each.

These must not contain any exceptant or adulterations, as any solution having the slightest precipitation, although microscopic, will clog the dental tubuli and entirely thwart the effort. Tablets of this description can be procured at all drug

stores. To these tablets add ten or fifteen drops of adrenalin chloride.

TO PROCEED.

Isolate the tooth with the dam. With the drill described, bore a hole of sufficient depth to reach communicating tubuli, which is evidenced by slight sensation. It is not necessary to go deeper than the first vital tissue, as distance from pulp is no hindrance to success.

This hole may be bored in the enamel at a convenient place or in the dentine within a cavity, avoiding the points of near exposure. A preferred place is the gingival wall, near its point angles.

Next insert the needle which, with a little pressure, will fit watertight at the drill hole, provided you have closely followed the directions given.

Now apply force at the piston to the full extent of the grip in the hand. This will be no small pressure, as taking the ordinary grip of 100 pounds as a basis, applied to the surface of a small piston point, the smaller the better, a few figures will show approximately one ton pressure to the square inch, with a good allowance for friction.

Apply the above pressure for 60 seconds. You can now use the drill again to the point of sensation, or nearly to the pulp, which do not fully expose as pressure directly to the pulp at this depth might cause pain.

Again apply the syringe with light pressure at first, gradually increasing to the maximum. Should it be noticed that a perceptible amount of the solution is entering the tooth, cease at once, as this has gone into the pulp cavity and the fraction of a drop so injected is an abundance.

Nearly all cases can now be fully exposed at any point desired and the pulp entirely removed completely insensible. The state of anaesthesia may be ascertained by passing a smooth broach. Should the slightest sensation be encountered the pulp is so far anaesthetized that it is in Class 2 and the treatment therein described will complete the operation in a painless and satisfactory manner.

Should it be desired to use the above method for desensitizing the dentine only, as a means of cavity preparation, or the shaping up of teeth for abutments, the procedure is quite similar except in extent and the change of formula. For all

but one drop of the adrenalin chloride there should be substituted the normal salt solution.

This is advised from the fact, that thrombosis might occur, should so strong an astringent reach the pulp tissue with its resulting ischemia. However, if the pulp is not injected, we believe there will be no evil results from the use of cocaine in full strength adrenalin chloride solutions, as the pulps of teeth whose dentine was so treated in 1902 still give normal response.

Class 2 includes those pulps wherein the functions of their nervous system seems to be more profoundly affected, resulting in a neuro-paralysis, due to disease or perhaps a lower type of development, never having been of a highly sensitive organization.

With this class of teeth, where actual exposure does not exist, the overlying dentine may be removed in many instances to complete exposure without pain, and where exposure does exist, many times the horn of the pulp has died a molecular death, showing the resultant space.

Pulps of this second class may present in any of the usual conditions, but are generally in the latter stages of passive hyperæmia when services are sought.

To proceed in such cases, in one drop of adrenalin chloride put from one to three one-sixth grain soluble tablets of cocaine. Saturate a small pellet of cotton, place over exposure, and pack cavity with vulcanizable gutta-percha, first with gentle pressure for one minute (time yourself and see how long this is) and gradually increase the pressure, proceeding as fast as can be done without pain. Now remove dentine to generous exposure, and reapply to affect deep portion of pulp.

If case has been properly diagnosed, painless extirpation can be accomplished. If pain is produced the case belongs to Class 1 and should be so treated.

The third division, as stated, are those wherein the circulatory system has been wrecked and the nerve functions still persist.

Such a case may be painlessly extirpated by first thoroughly antisepticizing, as semi-putrescence exists. Then apply a minute quantity of a paste of one part arsenic and three parts cocaine moistened with creosote for twenty-four to thirty-six hours. Remove dressing, saponify with sodium dioxide all fatty acids in canals as a furtherance of the resolu-

tion to end products resultant upon putrefactive changes. Wash and dry with alcohol and warm air. If there yet remains any vital pulp tissue in the apical region, apply cocaine adrenalin solution as in the second step, with Class 2.

Those who are opposed to the use of arsenic will reflect that in this class of cases we have a suspended circulation and the peridental membrane is not endangered as in the case of a vigorous circulation.

In closing, it should be remembered that in all pressure anaesthesia cases we have a pulp stump which is vital and in a short time will be liable to post-extirpation pains. This may be entirely avoided if a temporary dressing is used wherein one of the ingredients is carbolic acid, or a thorough cauterization with carbolic acid is made before dressing root canals.

THE ADVANTAGES OF THE PYROMETER FOR OBTAINING EXACT RESULTS IN BAKING PORCELAINS.*

BY WESTON A. PRICE, M. E., D. D. S., CLEVELAND, OHIO.

While successful porcelain work is dependent upon several factors which are both mechanical and artistic, yet if we use porcelain as a material for filling and crowns because of its better color we only accomplish that end when we so perfectly reproduce and restore the natural color as to completely conceal its artificiality, for in this branch of dentistry as in no other, "The perfection of art is the concealing of art."

To exactly reproduce the color of a tooth, we must be able to accomplish two things; viz., select the porcelains that will produce those exact color effects, and to produce those exact and definite results in color with that porcelain after selecting it.

The former depends largely on the artistic taste of the operator, and the latter on his ability to manipulate it so as to get exact and universal results. It is here that the pyrometer will be of greatest assistance, for with it he can be sure to produce exact and universal results which few, if any, can do so well, if at all without it. It will also assist him greatly, as will be shown in the purely artistic part of the work, the matching of the color.

*Read before the Ohio State Dental Society, December, 1901.

The greatest difficulty we encounter is that the color of all porcelains bakes out in a greater or lesser degree with increases of temperature. With most shades of most makes of porcelains an overbake of 100 degrees Cent. will remove 75 per cent. of the color and 25 degrees, not quite a proportional amount. This requires that with most colors for the exact production of a given shade with a given body we must bake it to within a few degrees of the same temperatures. This can be done with precision with the aid of the pyrometer and certainly cannot be done every time by many, if any, without. We will illustrate with these cards carrying buttons of baked porcelains of nearly all the principal makes.

This card of White's inlay porcelain shows the relative color and contraction when baked at each 50 degrees Cent. and 100 degrees Cent. too high and too low. It also shows the relative crushing strength which is reduced by both over and under baking. In general the results are the same except in degree with all porcelains, viz., that the color is considerably baked out at 50 degrees Cent. too high and nearly all baked out at 100 degrees Cent. too high. The contraction continues with the over-fusing and is greater with some porcelains than others, but in general is greater for low-fusing bodies than for high. Some bodies tend to spheroid much more than others with over baking. There is considerable difference in the working range or variable fusing temperature of different porcelains and of different shades of the same make of porcelain.

For example, Brewster's foundation body, shade brown, allows a range of 50 degrees Cent. too high or too low without materially effecting the shape or color, while Jenkins' body at the same amount of overbake changes shape materially and some shades of Brewster's enamel body and several shades of other bodies are very naturally changed by that amount of overbakes. With some colors ten or twenty degrees is sufficient to perceptibly change the color. I will pass cards bearing sets of six shades produced from each of Brewster's enamel bodies, each being baked at 25 degrees Cent. higher than the last. You will note that many of the shades of the shade-ring can be produced with just one color, for example: With F. you have about the steps A., B., C., D., E. and F., and with K. you have the shades I., J. and K., etc., so that the operator may say I should have selected D. or E. instead of F. to match this case,

while in fact he can still get it precisely by baking just exactly 25 degrees higher.

You will note from these cards of shades that some colors bake out more rapidly than others, which may if you have found out by experience, but they are all constant with the same baking.

The shade N., for example, looses its color very much less rapidly than most of the other colors and this by the way was the color fused for nearly all the trial bakes by other operators. The color that gave the widest range of baking temperatures without changing the color.

Now the average operator will say that the difference in color between the different shades of, say yellow, is so slight that if he selects the shade nearest to the tooth in question he will match the color near enough. If he could produce precisely just that shade with that porcelain it might be as high a standard of excellence as we should expect of the average operator, though the real expert will work to a much closer ideal with the means for doing so. But that is just where the trouble comes in, viz., can the average operator or any operator produce invariably a definite exact shade with a given porcelain and does he in practice? I know there are many who think they can, but after seeing from the results of tests that many of the most confident and supposed most competent have sadly failed, I personally am convinced that but few if any can produce a uniformly definite result. We each will, for example, take the shade-ring with the same shades as nearly as the manufacturer can make them the same shade and match them to the same tooth, and decide that the same color or shade will just exactly match, and then each of us bakes an inlay for it from porcelain from the same bottle mixed in the same mixture, and the only way on earth for us all to match that same tooth is to all produce that same color. I did precisely this, selecting the tooth and matching the color and then sent the formed pellet to over a score of the best operators all over the country and told them alike just what the material was and asked them all to bake, preserving the color and producing a full glaze. They were all from the same bottle and therefore precisely alike. They very kindly baked them promptly and returned them, stating they were glad to favor me and to let them know if they could serve me farther. They were all prominent men in porcelain work,

the majority known from east to west for their reputation in porcelain work.

Gentlemen, it nearly made me sick at heart when I numbered and mounted these pellets on a card beside each other, for there is almost as much difference and variety in color as there is on the Brewster shade-ring, yet they were all supposed to match the same tooth. Then to see if it could be true that this difference was due simply to a difference in ideals which was claimed later, I sent them each another set of the same from the same bottle and there was as much difference in the different bakes of the same men as between those of different men. To explain the difference in results by saying that it is a difference in ideals is both absurd and certainly a questionable compliment and is proved by the fact that two and three different bakes were all different. When the second button was sent I got several amusing replies. One man wrote, "I have burned the color out, kindly send me another," and when I wrote him that it was not fair for him to have two chances and the others one he wrote: "You may say for me that the only way to accurately fuse porcelain is by the use of a pyrometer." Another wrote for two more and one who had made a wager that he could bake two dozen for me identically the same color has not sent back second and third tests yet, after seeing that his first trial was second worst burned out of the lot.

I also sent pellets to several who had pyrometers and have mounted their different bakes side by side and there is a very close similarity in all the bakes in marked contrast to work done without a pyrometer.

I have frequently watched our best men giving a clinic of making a porcelain inlay and after the last bake hear them say in effect, when comparing it to the tooth, "well, I made a little mistake in selecting that last color," when in fact they had made a little mistake in baking it.

Porcelain in many operators' hands is treacherous, changeable and uncertain, while in fact it is only exacting, but when its laws are complied with it is as constant and uniform in result as the manipulation of gold.

I will give you a method of manipulation that I believe will enable you to produce exceedingly constant and accurate results in matching colors with any make of porcelain. First, you cannot depend on the shades furnished by any maker corre-

sponding exactly to the material in the corresponding bottle, hence it becomes necessary to bake a new color shade for every bottle, even of the same color. Make a set of shades for each bottle at regular increases of temperature like those I sent round, both for the shades and to show you the exact rate at which that color burns out. This is done once for all and by comparison you will soon become familiar with the variations from your shading as a guide. Take your shade-guide for the porcelain you decide is best suited to the case and select the color or colors best suited to produce the shades desired, suppose it is K. and N. Next compare the shade-test cards for those colors to see the rate at which the color burns out. You note that K. burns out more at 25 degrees Cent. overbake than N. does at 75 degrees Cent. Consider and decide from the shape and size of the piece about the number of bakings that will be necessary for each successive bake to the same temperature, take out a little more color about equal to going to 10 degrees higher for a slowly baking out color and 25 degrees Cent. for a rapidly baking out color of any make. In the colors selected, N. and K., you have an example of each, therefore you will add a little more of K. than your finished case will require if it is going to take three or four bakings instead of one. When selecting and mixing or superimposing the shades, plan to be exact or if any error, a small fraction on the dark side.

When building your inlay into your matrix place a small mass about the same general size on the tray on a separate piece of platinum and bake together. This will give you a test of color without the platinum matrix to change the color, and as you build on to the matrix add some of the same to this test piece and for your best bake, having decided both from your inlay in the matrix and your test-piece out of the matrix just what fraction of a shade too deep in color your inlay is. Compare it to the shade-cards if you have not the facts in mind and decide just how many degrees higher you shall bake it to make just the required slight change and your pyrometer will enable you to produce results in this way that are exceedingly gratifying, for as we have said, "the perfection of art is the concealing of art." A very sure test of this and every other method was recently encountered when I could not procure from any of the supply houses or by sending direct to S. S. White's the exact shade desired for a lot of

crowns. It could not be found in any kind of a tooth and I was required to place thirteen crowns all in conspicuous view. It became necessary to build all of these up from the body and the shade was a very difficult one. With the pyrometer and this exact method of procedure the writer was able to so perfectly produce the color of the natural tooth, and still harder, make all the crowns identical in quality and shade of color that they were as uniform as a set of natural teeth, though blending several colors, besides having the individuality that crowns or bridge teeth of a set have not until now modified. I know very well that I could not have accomplished it without the pyrometer, and until I see it done, cannot believe it can be done without one.

In simple inlays, even if the operator has not a really keen ability in selecting the precise shade by the means of definitely modifying the shade of the inlay by a definite increase in temperature, he can produce a very close match of shade.

But you say, why are not the methods we use regularly capable of producing an exact and universally definite result?

This requires a discussion of the various methods of controlling a furnace.

First, the time method, starting from a certain low temperature and increasing by a certain time on each or certain steps of the rheostat. That is not absolutely constant because the increase in temperature is only in the same proportion to the time when the starting temperature and the radiation are the same, which does not obtain without letting the furnace cool very low each time and is only constant when the voltage remains constant, which in blocks where the load on the lines varies is not constant. In most blocks where the elevator is run from the same line the voltage will vary from 6 to 10 volts and in some even more. Where this or any variation obtains, the time factor cannot be constant. Also, since in a warm muffle the temperature will rise much faster than in a cold one, just so in a very hot one, it will rise much faster than in a warm one. All the factors do not affect the pyrometer-controlled furnace when intelligently used, for the temperature itself is alone the controlling factor. I recently had an operator make two series of tests with the same furnace, which was connected to a pyrometer, to ascertain how nearly he could go to a definite temperature in successive heats. He used great care to cool the furnace away down to the same very dull red heat and to have every condition

as accurate as possible, yet even though at night when the load of voltage was constant he varied from twenty to forty degrees.

The method of timing from the melting point of pure gold is constantly better than the last, because it shortens the range of errors which are the same as in the last method, viz., rates of radiation due to initial temperature and temperature of surrounding mass and variations of voltage. This method unfortunately requires that the operator strain his eyes. The method of watching the glaze is dependent upon the condition of the eye, the shape of the surface and the light illuminating the surface and the difficulties, which are many, increase as the temperature increases and notwithstanding its serious injury to the eyes and the temporary effect of making it impossible to correctly see colors it is not constant in results owing to the variable conditions. The method of judging the temperature by looking into the furnace is dependent upon the light the eye has been used in during the preceding minutes or hour and upon the relaxed or tired conditions of the eyes. For example, what appears to be bright red at night is scarcely dull red in the day time. It is also very injurious to the eyes with high-fusing porcelains.

The method of having the furnace as hot as required before starting and placing the inlay or crown into it for a sufficient time and suddenly withdrawing, keeping the furnace hot and getting hotter all the time, cannot bake evenly through a large crown, and leaves an impossible factor for the operator to adjust, viz, the time to leave it in the white hot furnace which of necessity will change in temperature.

The advantages of the pyrometer in my mind are that it enables the operator to obtain definite and uniform results with any porcelain or shades, and with it saves much time, for since the temperature is the controlling factor, no close regularity of time for heating up to near the baking point is necessary. I have built up and baked an inlay three times in fifteen minutes from the time matrix was completed, and had it ready for etching. It also saves time by saving the operator's time, for his assistant can bake just as good as he can. It enables the operator to modify the shade to a definite amount brighter with certainty, thereby assisting him to match the colors.

It saves the operator's eyes. It enables the operator to see where he makes his mistakes, which is half their correction.

In brief, it enables him to produce the maximum result with the minimum care and uncertainty and time and strain. It will not furnish the operator brains, but it will furnish him the facts his brain cannot furnish and enable a poor porcelain worker to do good work and a good one to do better work.

DISCUSSION.

DR. M. H. FLETCHER: To discuss Doctor Price's paper is only to agree with him, for his evidence has been so well collected and so clearly put before us that one could hardly disprove it if he so desired.

His plan of sending to different porcelain operators samples from the same bottle of body and having them baked seems conclusive.

The variety of results this shows is astonishing to me, for I thought only I had such results in destroying color in the furnace, but it seems others also have had results.

I take it that the main object in using porcelain for a filling material, is to so conceal the results of repair that it is not visible, or not conspicuous at least. From the essayist's own idea to so perfect our art that it is entirely concealed, is the real object in using porcelain, but to accomplish this result with exactness and to be able to repeat it each time with porcelain seems only to be possible by use of the pyrometer.

The specimens shown of the different bodies furnished us by the various makers, baked by the aid of the pyrometer, is another revelation to me, for I had no idea that so many varieties of shades could be produced from one batch of body.

The comparatively slight difference in degrees of heat necessary to produce these different results is another surprise, as well as the accuracy with which this can be repeated.

With these evidences before us—as stated—there is no room for disagreement. The wonder is, why any of us continue to waste our time and effort in trying to accomplish the impossible.

To me, Doctor Price's pyrometer in connection with his furnace seems to have completely solved the problem over which many of us have labored and worried so much.

Whether the pyrometer accomplishes the same result with other furnaces or not the Doctor does not state.

Many of us have furnaces recently bought which we hesitate to lay aside, and yet, I, for one, certainly am tempted to do so immediately.

I feel that Doctor Price merits the gratitude of the profession for the definite and scientific results he has brought to us with his beautiful and accurate pyrometer and furnace.

DR. E. BALLARD LODGE: The essayist, Doctor Price, has very lucidly presented facts relating to the fusing of dental porcelain, which to my mind are incontrovertible. He has shown that without the pyrometer, it is impossible to get exactly uniform results.

He has shown further that porcelain from the same bottle molded into pellets of equal size and similar form and fused to glaze by a number of porcelain operators, will furnish as many variable results, as there are men fusing the same, there being not only no two exactly alike, but a very wide range of difference in shade and strength.

On the other hand, Doctor Price has shown that a given degree of heat acting upon a given mass of porcelain, will give constant results, i. e., color and strength will be uniform.

Not until the essayist's original experiments with the pyrometer and its use in fusing porcelain, were these facts so clearly set forth.

Suppose the eye were keen enough to determine the degree of fusion with accuracy (and the contrary has been demonstrated to be the case) the most valuable single asset the dentist possesses is his sight, and this use of it, viz: looking into a white hot muffle is injurious to the eye.

The initial heat of the muffle and the variation of the voltage in our office buildings are two factors which make it unsafe to rely upon either the appearance of the fusing porcelain or the contact point upon the rheostat and a given time.

When we consider that a relatively small number of degrees, more or less, will produce results as variable as have been demonstrated by the essayist, can we continue to do porcelain work and feel satisfied with ourselves, without the aid of the pyrometer? Certainly, we cannot.

The Price pyrometer, (the first for dental porcelain, and the one which appeals to me to be by far the best upon the market), employs for its accuracy, an independent current of electricity, generated within the muffle of the furnace by the heat there produced. The principle of the thermopile is made use of here. Two varying metals are united at one end of each, these being placed within the muffle, where the junction will receive the maximum degree of heat produced.

The current thereby generated is conveyed into the pyrometer, where by electro-magnetic induction a needle is actuated over a scale. This needle being an accurate index of the heat produced within the furnace.

Any change then in voltage of the heating current, will be recorded by the pyrometer. For instance, should the load be increased with a corresponding drop of, say ten volts potential in current, which passes through the muffle and which is the source of heat, the needle would then drop back because of the consequent cooling of the muffle.

It being known that a given porcelain requires a definite degree of heat for proper fusion, it only requires that resistance be turned out until the needle attains the required point and the porcelain is fused and fused right. Furthermore, it can be depended upon to be right every time. A pyrometer is nothing more nor less than a delicate, a wonderfully delicate electric thermometer, the principle upon which it acts, being as constant as the law of gravitation or any other natural law. If we do vulcanite work, we use a thermometer on our vulcanizer, because to do so, gives us assurance in the quality of our product. If a thermometer is a good thing upon a vulcanizer, it will be also, most useful, if not well nigh indispensable in connection with the porcelain furnace. Its use enables us to be accurate with regard to strength and color. To be accurate

is to be scientific and science depends upon the accurate measuring of things.

DR. W. G. EBERSOLE: I can only say that with a number of years' experience in baking porcelain the old way, and a few weeks the new way, using the pyrometer, I will say that the latter, that is: baking with the use of the pyrometer, is the only rational and thoroughly satisfactory way. I considered myself exceptionally successful in producing satisfactory results without the pyrometer, in fact in a number of tests, I found a great degree of accuracy in producing the same shade in baking the old way, but while that was the case, I can only say that there is only one condition under which I would return to the use of that method, and that would be in case where it would be absolutely impossible to procure a pyrometer. The use of the pyrometer is not only a great saving of time and nervous energy, but above all it eliminates all eye strain. No man, I care not how expert he may be, or what method he may use, can produce results equal to those produced where the pyrometer is used.

I consider the pyrometer *absolutely* indispensable to the successful working of porcelain, in fact, I believe that if it were not for the pyrometer, I would have been compelled to give up the porcelain work on account of the injury to the eye.

DR. J. F. STEPHAN: Doctor Price has given us a very careful paper on the subject that is of intense interest to many of us at the present time.

To obtain exact results in the baking of a porcelain inlay does not mean, to my mind, solely obtaining the exact color. It means also to impart to it the maximum strength to resist the forces of mastication, and to give strong marginal walls; also to impart to the mass a translucent, a lifelike brilliancy and lustre, not leaving it dead and uninteresting in appearance.

The proper baking of porcelain is a matter of individual experience. One cannot impart the knowledge he has gained to another, for each bottle of porcelain, even of the same color, made by the same manufacturer, may vary enough in quality, so that the same conditions, when applied to a sample of each will produce different results.

In the paper, the Doctor seems to lay the greatest stress on obtaining proper color. I feel, however, that proper texture is of as great importance, as proper color. In view of the fact that the strength of the mass is impaired in over baking, I would speak a word of caution against attempt to bleach porcelain when the original color scheme has been too dark.

In order to obtain the highest artistic results, a nicety of perception is necessary, which taxes the operator's every resource.

In his experiments, the essayist has conclusively shown, that a very slight variation in the fusing of the porcelain alters its character, both as to color and texture. My experience would only duplicate this testimony.

We cannot depend upon the eye to detect the slight variation in temperature, which make a good or poor bake. The eye is strained when watching an oven and soon becomes tired, and the results will vary accordingly. We need some guide, which will always give us the same re-

sults, under the same conditions, and I believe that we have the nearest approach to that guide in the pyrometer. It certainly does help one to get more accurate results, than by any other method, of which I know. I do not wish to create the opinion that it is infallible in its readings, for there are many conditions that modify the ability of the operator to get results twice the same.

One of these modifying factors I wish to call to your attention, and that is that the temperature inside the furnace is varied, therefore, having all other conditions equal, if the inlay does not take the same position in the muffle each time it is replaced, the readings on the scale of the pyrometer will not indicate the temperature to which it is exposed. The results will vary through no fault of the instrument, but through carelessness or a lack of understanding of the pyrometer. I prefer to under-fuse in the first baking, then by examining the result I know by experience about how many degrees higher my pyrometer reading should be to get the proper result. Once having reached the correct result, it can always be obtained again for the same bottle of porcelain.

It takes as much care and experience to properly manipulate a furnace with the pyrometer attached, as one without, but once the careful operator has mastered the peculiarities of his own furnace, he will be able to attain a much higher standard of excellency with the pyrometer than without it.

I am certain that I have been able to obtain better results, than I did when I used eye service and time as my only guides. To obtain exact results one must use exact appliances and methods of procedure and I think we will all agree that Doctor Price has shown that these results can be more nearly obtained in the fusing of porcelain by the use of a pyrometer, than by any other guide.

DR. WESTON A. PRICE: In closing the discussion on this paper, I wish to thank those who have discussed it, for the valuable points they have brought out and emphasized. I know that some have doubted the possibility of making an instrument that would be accurate and constantly so. The conditions which make this difficult, have been overcome in this instrument as any one can tell by testing. It reduces the manipulation of porcelain to an exactness that those who have not used a pyrometer have not appreciated the possibility of doing. In reply to Doctor Fletcher's questions as to "whether the pyrometer accomplishes the same results with other furnaces or not," I would say, yes, whether gas or coke or electric or any make of electric.

Doctor Lodge correctly states the principal on which the pyrometer works. You can judge the delicacy of the meter which measures the current, when you consider that the voltage in the couples at 2000 degrees F. does not exceed one fiftieth of a volt.



GOLD INLAYS.*

BY J. D. WHITEMAN, D. D. S., MERCER, PENNSYLVANIA.

With the introduction of the inlay system of filling teeth a new epoch in dentistry was begun, and now that its merits have been established bids fair to revolutionize dental practice.

It is but a few years ago that we had but two, so-called, permanent filling materials, gold-foil and amalgam, and at that time manipulative ability constituted the "*summum bonum*" of dental attainment. But now the situation is changed and the dentist must add to manipulative ability to discriminate in an increased number of materials, to secure the one best adapted to meet the specific conditions. •

In other words, we cannot hope to secure the best results by the employment of any one method or material, or any limited number, but by the judicious use of all, each in its particular sphere.

My excuse, if an excuse is required, for calling your attention to the value of the gold inlay and advocating its use in the anterior teeth is, that when the subject of gold inlays has heretofore been considered their application has been advocated generally for the posterior teeth alone, while their application in the anterior teeth if suggested at all has been limited to a very few unusual cases.

While I admit an enthusiasm for the gold inlay I do not advocate their use where the condensed gold filling or the porcelain inlay has been found satisfactory, but when conditions are such that these do not fulfill the requirements of our present high standards, and I think you will concede that some such conditions do exist, the gold inlay will frequently meet these requirements, avoiding the too frequent necessity of resorting to some method of crowning.

The superiority of the inlay system of filling teeth over the condensed gold or other filling in some class of cavities is now quite generally recognized, but I fear, by many the merits of the porcelain inlay are greatly over-estimated.

I heard the statement made at the recent international meeting by one of the clinicians at that meeting, by a man of national reputation as an expert in porcelain, that "teeth capable

*Read before the Odontological Society of Western Pennsylvania, March, 1905.

of being filled at all can be filled with porcelain, in all cases as well, and in most cases better," than with any other material.

This statement is as far from the truth as we now know the statement to be that "teeth that are worth filling at all should be filled with gold," as gold devotees told us only a few years ago.

I think oxyphosphate when protected from the fluids of the mouth is in every respect the very best filling material we have either in vital or devitalized teeth, hence fillings made by the inlay system where indicated are infinitely better than the condensed gold or other filling without it.

The gold inlay has been used and thoroughly tested in the posterior teeth for a number of years, but since the introduction of porcelain a strong prejudice has developed against gold in the anterior teeth and when an inlay has been indicated at all in these teeth (and in many cases whether indicated or not) porcelain has been the material used.

My own experience and observation has confirmed me in the belief that for labial cavities porcelain is scarcely equaled by any material we have. But in many approximal cavities, especially where the incisal edge or grinding surface is involved the lack of edge strength in porcelain is a serious menace to its permanence and where the teeth are wearing on grinding surface, incisal edge, or palatal surface, positively fatal.

Do not understand me to condemn porcelain unqualifiedly, for all cavities where the incisal edge is involved, but before one employs it in such cases he should note well the conditions to be encountered

The extent to which the absence of this property of edge strength detracts from the stability of the porcelain inlay can scarcely be over estimated. It is far more reaching in its influence than the same defect had with the old slow setting plastic alloys that were in use until a few years ago. But the edges of an amalgam filling may chip away to a considerable extent without necessarily affecting its durability. But with porcelain it is quite the contrary.

Those most devoted to porcelain admit that the cement dissolves out at the margins only to a depth equal to their width, and this is in accordance with my own observations, that is, *where the margins are not subjected to severe friction during mastication, but if they are it will wear out considerably deep-*

er. And, mark you, when that takes place, that margin, being subjected to stress, chipping will inevitably occur, leaving the margins still wider and affording a better opportunity for a repetition of the same process which soon results in the loss of the inlay.

My over zealous porcelain friends will say: Prepare your margins and shape your cavities properly and this chipping will not occur and in some instances we will admit that this is true, but the fact remains that porcelain is strong in proportion to its bulk and as we approach the incisal edge and the margins on grinding surfaces a sufficient bulk is frequently unobtainable to offer a sufficient resistance to any unusual stress.

Thus it will be seen that porcelain has well defined and positive limitations as a filling material and that the disregarding of these limitations is sure to degrade it in public favor as well as to destroy its usefulness as a filling material

Now I believe that we should all use porcelain, but use it rationally and conservatively and do our utmost to perfect ourselves in its manipulation, and to educate the public to receive and appreciate it. But in advocating the use of porcelain to our patients in general it will be well enough to remember that, as long as Dame Fashion decrees that jewelry may be worn to the almost unlimited extent that she does, they who may gratify all such desire may not care for further ornamentation by gold in the teeth. But will others, those in moderate or average circumstances (who, by the way, form the vast majority of our patients) when they find that the use of porcelain generally involves the sacrifice of a measure of permanence for appearance, and consequently more expensive?

It has been my own observation, and of some others with whom I have conversed on this subject, that in a very great many instances the interest of our patients in porcelain and their desire to avoid the use of gold is due to a desire to get something less expensive rather than something less conspicuous.

It would seem to me that, in treating this large class of patients the rational procedure would be, not to urge the use of porcelain, but to avoid all unnecessary display of gold by securing adequate separation by wedging for all approximal cavities, and thus conserving the labial wall, rather than cutting it away to secure access.

As I said before, a deep cavity, especially one that has enamel wall unsupported by dentine, is better filled with an inlay than with a condensed gold filling and I would add that such cavities can in all cases be filled as permanently with a gold inlay as with porcelain, and in many cases more so, as the gold inlay having margins of the soft 24-k. gold capable of being re-burnished after the inlay is made has better margins to start with and those that will not chip under stress, but positively give the cement entire protection. In fact, the gold inlay, save color, possesses all the virtues of porcelain and many peculiar to itself, and as the conditions demanding a gold inlay in the anterior teeth are usually found in men of middle age the objection to color is insignificant.

And by virtue of their extreme edge strength the gold inlay is especially valuable in the restoration of corners in the incisor teeth which through subjection to severe use have been worn to an extreme chisel shape or one might almost say, to a knife edge, and which do not offer a very promising case for the contour gold filling.

We will take for illustration a case where the posterior teeth have been lost, the incisor teeth are decayed or have been filled on approximal surfaces and as a result of the continued wear the corners have been broken off, necessitating restoration of contour. Here the gold inlay is incomparably better than anything we have, and may be depended upon to give uniformly successful results.

I have not intended to enter into the technic of this work until at the clinic tomorrow, but it might be well enough while we have the black-board to describe the method of procedure in this case.

A central or lateral broken down on both approximal surfaces.

First: Denude the tooth of enamel two-thirds up the lingual side.

Second: Trim labial plate of enamel of mesial and distal cavities to produce a slight incline of these margins, cutting away lingual wall to the depth of cavities.

Third: Grind down incisal edge about a line.

Now adapt a matrix of No. 120 gold-foil, take a piece of No. 36 gauge 24k. plate large enough to cover lingual side and form lingual side of mesial and distal contour and turn up at cutting

edge, remove matrix, they need not be attached with wax as they will go together in their relative positions; now tack together with solder, and replace on tooth, burnish again to tooth and remove and flow enough solder between matrix and plate to stiffen it; again replace on tooth and pack into the matrix crystal gold, loosely, to form contour and remove and fill the part of matrix occupied by tooth with investment material being careful not to let any come in contact with crystal gold, and complete with 22-k. solder.

You will observe by examining the specimen that you have a tooth strengthened by backing of gold, a filling pleasing in appearance and one that will meet all requirements.

The restoration of cusps, and the tips of incisors and anchored with pins lost through abrasion is far more simple and equally satisfactory and more desirable in every way than the gold crown usually resorted to in these cases.

I cannot leave this subject without calling attention to the value of the gold inlay as a means of securing anchorage for short bridges, especially in the cuspid and first molars.

The supplying of the bicuspid by a bridge anchored to a cuspid and first molar with gold crowns, from an esthetic point of view can scarcely be called an improvement over the original condition, and the sacrifice of a sound cuspid for a Richmond is far out of proportion to the benefits secured, and if the value of the gold inlay as a means for anchorage in such cases were appreciated this crime would be less frequently committed.

I have not pretended to enumerate all the places or conditions in which the gold inlay may be employed, but have only attempted to describe a few of the conditions in the anterior teeth in which I have found them most valuable.

DISCUSSION.

DR. H. E. FRIESELL: I am very pleased with the models Doctor Whiteman presented to the society, and also with his methods. There are places in the anterior teeth where gold inlays would be superior to porcelain, for instance, where the anterior teeth are subject to excessive stress or force in mastication. When the posterior teeth have been lost, the anterior teeth are subjected to many times the strain, which they would normally resist if the posterior teeth were present.

Gold inlays are particularly applicable in the posterior teeth where the crushing strain is too great for the edges of porcelain. There has been an

objection to solid gold inlays on account of shrinkage, and I prefer in most cases to use the hollow inlay. The cavity must be prepared so that the inlay will be supported by the tooth structure and prevent tipping of the inlay out of position, the same as you prepare for amalgam filling. If there be any undercuts in the cavity, fill them with cement.

A small piece of German silver, bent at right angles, makes an impression tray small enough to pass between the tooth involved and the approximating one. With this tray it is a simple matter to secure an accurate impression, in modeling compound, of the properly prepared cavity.

Make a fusible alloy die; swage a matrix of pure gold, 36 to 45 gauge; burnish the matrix in the cavity for accurate adaptation. Take impression and bite in modeling compound and run plaster models. Adjust matrix to cavity in model; fill with modeling compound and carve cusps and contact point to full restoration. Saw out the approximating tooth. Take impression in moldine of occlusal and approximal surfaces of inlay; make fusible alloy die and swage outer matrix, or cover, using same gauge gold as for inner matrix. Bevel the inner edges of both matrix and cover to permit of close adaptation. Remove compound from matrix; cut opening in center; cover opening with hard wax in pasty, not sticky, condition; wax cover to matrix. Invest, cover down, in an investment of asbestos and plaster or in Brophy's investment material. Dry out, remove wax through opening made in center of matrix, and fill with small pieces of gold plate and 22-k solder to the desired extent to properly strengthen the cusps and still leave the inlay hollow.

Shrinkage of solder is lessened by adding pieces of 22 and 24-k plate to the solder, rather than filling solely with solder.

Set inlay with cement, the hollow giving sufficient anchorage therefor. Have patient return in twenty-four hours and polish edges of matrix with stones and disks.

DR. W. L. FICKES: In regard to the filling of the inlay, Doctor Friesell spoke of the stripping of the matrix, leaving a space of the extent of the thickness of the matrix between the teeth. That is not strictly true when you make it over a model, because of the natural form, and that is the best form, allowing the inlay to settle and bring the matrix more closely together, that can be obviated by making the matrix over an impression, instead of the model. In that case, you must get an absolutely perfect fit.

Some prefer one method, and some another. I have used both, and I don't know which I like the best.

DR. W. H. FUNDENBERG: Sixteen or seventeen years ago I tried inlays, using the methods suggested by the Doctor. I practically discarded them, but I see great advantage of this, probably with bridge-work.

But there was one point in the paper I feel inclined to take exception to. I may not quote the gentleman correctly, but it was that the masses could not pay for certain things. Well, the masses are not those of enormous wealth, but I never have understood why a man would be so eager to have a new hat right in the latest style and various other things, and allow certain things in the mouth to go. Neither have I under-

stood why the ladies will not stop at any expense in regard to clothing, and hesitate to give you a dollar for a first-class piece of work in the mouth. It is all in education.

DOCTOR WHITEMAN: In finishing the inlay I should have cautioned you not to take and finish the gold inlay with strips or disks, unless they are thoroughly lubricated. It is easier to cut, and unless you are exceedingly careful you will heat up the inlay and destroy it.

When I was experimenting first, I took it and dressed it down with the disk, and put it in. While, of course, you would not heat the inlay to a great extent, it would have some effect.

In regard to the retention of gold inlay over the porcelain, I have been wondering for some time, whether we got as good adhesion for a gold inlay, as we do for a porcelain inlay.

I don't want to pose as an expert or having had a great deal of experience, for I have only used it for four years.

THE CARE OF THE TEETH OF THE POOR.*

BY W. T. JACKMAN, D. D. S., CLEVELAND, OHIO.

Not many decades ago when a dentist discovered a fact he was very, very careful to keep it to himself. If he had a brother dentist visiting him in his office, the last place in the world he would think of was to take him into his holy of holies, his laboratory. There are gentlemen in this room much older than I who will attest to this. This, however, is a matter of history. But all over this country men conceived the thought that this was too small and too narrow for a profession, consequently they conceived the idea of organization. Out of which came dental societies, with the result, as we know, that we have dental associations everywhere; and you know what these societies have done for us in the way of broadening the profession; certainly this meeting will attest what I am saying, when you consider the essays we are having and the clinics we shall have before the close of the meeting. Every man in the profession is ready to help his brother. Now, so much for the elimination of selfishness within the profession. We have not progressed yet as far as we should; but I believe we have come to a point in our history where we should take another step and a very important one. When we shall have practiced the teachings of the Christ we shall have reached the ideal. When He said, "I was in prison and ye visited me; I was hungry

*Read before the Ohio State Dental Society, December, 1904.

and ye fed me; I was sick and ye ministered unto me." He taught the highest ideal we can conceive. Now, when dentistry reaches that point, when we can think of our unfortunate fellows as we think of ourselves, then we shall have reached the highest ideal of dentistry as a profession. Now this explanation I make, in presenting the subject upon which I have written my paper, "The Care of the Teeth of the Poor."

Nineteen hundred years ago, He who spake as never man spake, uttered this truism: "The poor ye have with you always."

My hearers, I may not receive responsive thought vibrations from you in presenting a paper on this new subject—new, because, in so far as the writer is aware, there has never been in this country any action taken by any State Dental Society out of which grew anything practical. Indeed, no paper on the subject can be recalled. Therefore this matter is brought to your attention at this time, trusting this Society will take the desired initiative. In the presentation of this subject, prolixity and superfluous verbiage will be carefully avoided, but per contra—shortness and conciseness.

There can be no doubt, it would seem, that the time has come for the dental profession to awake to the crying need of the indigent poor for dental services. Because of proper legislation the medical profession has done and is doing much for these people. Can we do less and yet be known as a *liberal* profession? True, when the relative ages of these professions are considered, perhaps more may be expected from the medical; yet, my confreres, are we not derelict in duty when we neglect to help these fellow mortals who cannot help themselves? Your humble servant would answer this interrogative most emphatically in the affirmative. To adversely criticise conditions as found without offering a possible solution for their betterment would be worse than useless. Therefore, concluding that you agree with the foregoing it becomes necessary to point out a way for action. Please bear in mind the *indigent* poor is the class referred to, not those persons who attend dental college clinics, paying, supposedly, the cost only of the materials used. Those who can afford to pay a small fee, as at a college clinic, should be required to do so in an office.

I had the honor of being a member of the committee on "The Care of the Teeth of the Poor" for the International Dental Congress held last August-September at St. Louis. Dr. Thomas

Fillebrown, of Boston, Chairman. Doctor Fillebrown requested me to write a paper for the Congress, but knowing that I would not be there and for other reasons I declined, but presented for his report a few brief replies to some questions he formulated relative to this matter. The following are practically some of the answers given him:

First: Is it practicable to attempt a systematic care of the teeth of the poor, and if so, to what extent? Yes, I think it entirely practicable. This is a question to which I have given a good deal of thought. In brief it is as follows: The cities should be divided into districts and there should be a dentist for the poor of each district—on a similar plan as the district physician. Of course the districts would be, of necessity, smaller than the medical districts. The people should be taxed for this work and free services given to those only who are absolutely unable to pay for it.

To be specific: the young beginner—the recent graduate, would be glad to get such a position if he were assured of a certain stipulated income for, say, half his time. The other half he could give to practice building. This beginner should be established in five years, after which time his place should be given to another, and so on. After some such plan as outlined above I believe the teeth of the indigent poor could be cared for. Of course this plan would apply to the country as well, simply making the districts larger. I do not think it would be prudent or wise to compel the poor to have their teeth cared for regularly, or at all for that matter. This should be entirely voluntary. This latter reply is in answer to a question the reply suggests.

Second: Can the public be reached through the public schools? I do not think so. The time of the pupils of our public schools is so completely occupied that to attempt anything more would be “confusion worse confounded.” Therefore, an utterly unwise, if not a foolish thing, to attempt.

Third: Should clinics be wholly or partially free? “Care of the teeth of the poor.” In this connection I understand the word “poor” to mean the indigent poor—those who are wholly unable to pay anything for dental services. Then there can be but one answer—entirely free.

The class immediately above this is usually composed of “ne’er do wells,” but can pay something, and if that something is not exacted they become mendicants much to their own hurt in many

ways. There are many young men in our cities, and country towns, too, who have plenty of spare time and who would be glad to work for this class for what remuneration they could give rather than do nothing.

Fourth: How can the sick poor, who are unable to attend a clinic, be reached?

The statement should have been made in the answer to the first question that the poor of any district would be expected to go to the office of the district dentist during the hours of his free clinic. This dentist should set apart some of his time to visit the sick poor of his district the same as any practitioner looks after the sick among his regular patrons.

Fifth: Is it possible for local dental societies, independent of dental schools, to establish a permanent clinic?

No, emphatically no. It could not be permanently established for the simple and sufficient reason that it would lack funds.

I have already explained why those who can pay something for dental services should do so. There should be no free public clinics for them, but rather they should be of what help they can to the struggling young practitioner who is trying to get a foothold in his chosen profession.

Criminologists tell us that ignorance, misery and crime go hand in hand. Our free public schools have done and are doing much toward relief from the first of these and shall we not use our utmost endeavors to mitigate crime by relieving the dental misery of the indigent poor, either by the suggested or some other plan? If funds for this purpose are to be obtained by taxation, then it becomes necessary for this body to take some action whereby a law may be had to this end.

This of course must be done by the legislature. The procedure must be after the manner of getting other desired dental legislation, viz: the appointing of a committee by this Society which will see that the desired legislation is had.

Knowing full well that the watchword of this Society is "Progress," I can but believe you will thoroughly discuss this subject and out of the discussion something practical will evolve.

I close by giving you an anonymous quotation:

"I shall pass through this world but once. Any good, therefore, that I can do, or any kindness that I can show to any human being, let me do it now. Let me not defer or neglect it, for I shall not pass this way again."

DISCUSSION.

DR. C. I. KEELEY: We all have more or less of a certain class of patients who are poor but deserving, for whom we work and charge less than our regular patients, and I do not believe there are any of us who would refuse to relieve suffering humanity, no matter how poor. But whether we can reach this lower class is a question. The medical profession, of course, have their laws, and these men are in certain districts and receive certain compensation for their work. Would the legislature take hold of this question and appropriate money for the care of the teeth? They appropriate money for the sick, because they think it is important to save life, and they should consider us in the same light. I should like to see something done in this way, and those poor people are certainly deserving of some kind of consideration. I compliment Doctor Jackman upon the paper and hope it will be the means of doing good.

DR. W. G. EBERSOLE: As has already been said, Doctor Jackman has given us a most excellent paper upon a subject which may well merit the attention of this Society. It is a subject to which I at one time gave a great deal of thought. Two or three of the members of the Society, in looking over the program and seeing my name as a discussor of this subject have laughingly said that they thought I was interested only in the rich and that I had had little experience with the poor. Gentlemen, it has been my privilege to come in contact and work for many of the poor, both from a medical and dental standpoint. During my senior year in medicine I came in contact with many of these people in their homes and in the various clinics, and again I have met them both in the dental college clinic and in my early private practice. I have had an excellent opportunity to study these people, and while I agree with most that the essayist has to say, there are places where we differ.

In the paper the writer has simply confined himself to the duty we owe the poor. "The poor, ye have with you always." It is this fact that makes the obligation upon us all the greater. The obligation to the poor is great, but the obligation becomes greater when we consider that by the neglect of the poor the interest of all other classes are neglected also. I mean by this statement that the essayist has failed to give us the full import of this matter. If the teeth and mouths of the poor are neglected then ill-health and disease exist here to be scattered broadcast, the air we breathe is fouled, the streets we walk upon are polluted by the excretions from these neglected people. The ill-kept and neglected mouths at once become the breeding places of myriads of pathogenic germs, the pathological effect depending upon the virulence of the germ or upon the immunity of the subject, due to gradual cultivation. Thrown from the breeding places these germs may fall upon soil lacking the ability to confine their activity to a certain locality, then it is that mischief is done. Think of the street-cars where we ride mile after mile, crowded like sardines in a box, where the rich and the poor, stand or sit shoulder to shoulder, where the clean, whether rich or poor, are compelled to breathe the foul air thrown from the lungs and mouths of the neglectful rich or the helpless poor. Come with me into the great stores

during a time like the next three weeks brings or come with me into that great and grand national institution which tears the innocent and helpless babes from our arms as it were, that they may be prepared for life's great battles, the public schools, where the high, the low, the rich, the poor, the clean and the unclean are grouped hour after hour every school day during the year, and then tell me whether the action the essayist asked this Society to take is simply a moral or religious duty or whether it is not a duty demanded both by God and man in the interest of humanity.

The essayist says, "I do not think it would be prudent or wise to compel the poor to have their teeth cared for regularly or at all for that matter." Again he tells us that the public schools are no place for attempting this work because of their being so completely occupied. At this point the essayist and I differ. The public schools must not become so completely occupied with the mental that they neglect the physical being. And again where means are at hand or where furnished, is it not well to compel the few to receive treatment that the many may be protected? We have Health Boards and sanitary laws all directed towards the prevention, treatment and cure of the various contagious and infectious diseases and the rich and poor alike must conform to them. Smallpox, scarlet fever, diphtheria, tuberculosis, measles and many other diseases have laws governing patients, sick, convalescent or exposed, and if it is because the ravages of these diseases are well known and most apparent, then why should laws not be made to govern the conditions equally well known, though less apparent?

In the public schools of our larger cities a member of the medical profession has been employed to look after the interests of the eyes of the school children, examining the eyes of various children, recommending the treatment they should receive. With the eye, the danger is to the single individual. With the diseases of the mouth the health and comfort of all are jeopardized. Let us have laws that make it possible for all to have their mouths and teeth properly cared for, as far as the schools are concerned, which compel the rich and poor alike to submit to treatment. To procure these, let this Society pass a resolution asking the president to appoint a committee of good men with vim and push and backbone enough to take this matter and stay with it until the result is accomplished, and let them in the drafting of the law they would have passed provide for a district dentist selected from the young men entering the profession, as suggested by the essayist, but let them provide that this district dentist shall report to and be controlled by a committee of old and well-established dentists, appointed from the lists furnished by the various dental organizations, and let them provide for a dental inspector in our public schools, whose duty it shall be to inspect, advise and compel treatment and care of the teeth and mouth.

Gentlemen, let us consider the question in the manner and with the seriousness which it demands. To take steps of this kind means a direct advance in the interests of humanity.

I congratulate the essayist upon being the first to bring this important matter before this body.

DR. WESTON A. PRICE: This subject is very important. When we look at public life in this country, with its varied interests, we see that it has been the history of our people not only to provide for the present but for the future, just as we do in business, and the first requisite for a nation to be successful is that the individuality of its membership be so high, both physical and moral, that they are capable of maintaining a high average standard of efficiency, the first requisite for which is health. Now what is the case in our country today? We do have a large population, but we have not a high standard of citizenship in all that that means as to culture and physical attainment, we are weaker than fifty per cent. of our possible strength because of physical weakness. We are the ones who must take the initiative in a movement of this kind, and if we are to bring the poor up to a point where they are to be the best citizens, we must all assist in bringing them to a better physical development. They cannot have good health if their teeth are allowed to be lost early in life. They cannot be good citizens without good health. Then, as a business proposition, our law makers who will meet in this State should be willing to consider the improvement of the personality, the general average of the life and citizenship of these people. And if we go at it as a business proposition and show we want by this means to increase the potency of our State twenty-five per cent. they will listen to it and hear it, as a business proposition if not as a moral duty. We think it is a very great duty we owe as a business proposition.

Now a word about our neglect of duty. It is unusual and lamentable that the United States, which has been the leader in most other things, should be the last great country in the world to take up a work of this kind. In England the indigent poor can go to the free clinic and have the work done without any cost whatever; in France they can do the same, and in Germany the same, and in America, the father of dentistry, they can let their teeth go or have them extracted when the pain gets too severe to endure. Shall we allow this to go on without even offering a suggestion as to how to prevent it? I think it is our duty to support this proposition and to have a committee appointed by the president.

DR. H. J. BOSART: This is a subject in which I have been very much interested and I presume you would like to know how we propose to handle it down in Springfield, where a new hospital is in process of construction. In a talk with the trustees, some time since, I said: "Now, gentlemen, I think it is necessary to have the teeth looked after, and to have a clinic for the teeth and the mouths of the very poor, and especially of such of the poor as cannot pay anything for this kind of treatment. As it is, you have one relating to the eye and the ear and all other parts of the body."

Their reply was: "Well, what would you do?" "Do this," I suggested; "if you gentlemen, in building your hospital, will furnish me a room and fit it out, I will start the thing thus." And this was my method for accomplishing the desired result, to appoint a certain hour or two each week to look after that class of patients, treatment being known to be free for the poor. I can't see why such a procedure would not reach

them most effectively, as every city has its hospital, where the poor expect to come for treatment.

This arrangement will go into effect about the first of the year. By the next meeting the hospital will have been in operation for a year, at which time I will give you some of the results of this arrangement.

DR. H. A. SMITH: In line with what the essayist has said I may mention that Cincinnati is about to erect a large modern hospital, and it is stated that accommodation will be provided for indigent persons in pressing need of dental services. In Springfield, Ohio, we are informed apartments in their new hospital are provided for treatment and operations in oral surgery. All this is significant, and is an indication that before many years our State and municipal governments will recognize the demand for the appointment and maintenance of a corps of dentists for hospital work in their line, just the same as physicians and surgeons are now selected and maintained for general public services in their lines.

In cities in which dental college infirmaries are established, large numbers of children from the homes for orphans are dentally treated. In one institution of this kind which has been under close observation for a good number of years, the children's teeth are regularly examined twice a year and all needful operations made.

The benefits of systematic examinations and prompt treatment of all oral lesions are strikingly shown in the small number of fillings made for these children in comparison with the number required by children of corresponding ages of the well-to-do classes. In good part these results in the direction of preventive dentistry are due to the strict attention which each child receives in the practice of oral hygiene.

The problem, how to care in a conservative way for the teeth of our indigent adult population, is far from being solved. Indeed, under present conditions it seems impracticable to do much more than give relief from pain incident to dental diseases. It remains, then, for dentists and others interested in this philanthropic work—caring for the teeth of the poor—to direct their attention to the care of the teeth of the children in our public schools. In most of the larger cities abroad strenuous effort is being made to include dental hygiene in any scheme to teach general hygiene in the public schools. In England, societies known as the "School Dentists' Society" have been organized for the purpose of co-operating with the school authorities in devising methods for the instruction of the rising generation in dental hygiene. Besides lectures, it is recommended that systematic examinations of the teeth of children by competent dentists employed by school authorities should be practiced. When necessary teeth are to be filled. These and other regulations are compulsory and the cost is provided for out of the common fund.

It is now generally held, by those who have studied the subject, if any lasting impression is to be made as to the importance of dental hygiene it must come through teaching its true principles to the children through the medium of our public schools.

DOCTOR BUTLER: This subject is one that should claim our attention, and as Doctor Smith says, we should not reflect too much on ourselves as a

nation, and remember that we are young as compared with England and France and Germany and Russia, notwithstanding they have done a little more in a systematic way in their great hospitals and institutions for caring for their indigent poor. I am very glad Doctor Smith said what he did in reference to the difference between the services rendered by the medical profession and the dental profession. They might see perhaps half a dozen patients within the hour or more and prescribe for them, while we could not hardly examine two cases within the hour, and it would be considerable of a tax; and it is not true that we are not doing our share of charity work. I do not think that any man is so selfish and indifferent as not to be doing something in that direction. We all have the poor about us; they come to us in such a manner that unless we are human we must suffer some with them and have some love and interest in them. Just how to get at the start of this work in a systematic way is a big problem; and whether anything can be done in the way of legislation or reaching the public so as to get their co-operation it will involve considerable time and labor on the part of those who are willing to serve, and at the same time cannot be done without more or less money to provide the ways and means.

I will say a word about the manner in which our profession has been treated in the army. I will say I think it most outrageous, and yet we must not waste our efforts in this direction, and also in trying to meet this plan which has been suggested in a way. I am very glad that Doctor Jackman had the courage or something else to bring the subject up, and whether we make any progress or not it is a good subject to think about, and we must begin somewhere, and perhaps by another year some one will have a formula that we can work upon better than now.

DR. J. R. BELL: The poor of our country are certainly cared for in a magnanimous way. No one that suffers, and the question of our service to the worthy poor only remains within ourselves to educate the people who are able to bring about that condition, and we must take steps to do that by education. First, we must make the people know, and the law makers know, and the physicians know and understand, that the health of the poor depends as much upon good teeth as upon good eyes and good ears and good stomachs. The stomach specialists and the lung specialists have gotten in, and are working on true lines, under laws, while it seems that dental surgery has come along, and has been forgotten as an important feature. Now it seems to me that the time is not just right for considering a movement of this kind until we can get the minds of the law-makers to know and understand the importance of taking care of the teeth of the poor. We must prove by demonstration how much the standard of health can be raised by the care and preservation of the teeth.

DR. H. L. AMBLER, of Cleveland: One of the proper methods of introducing the care of the teeth is through the public hospitals. The way to do is for us to become acquainted with the controlling powers in the hospitals, the boards of directors and the superintendents, and those who will furnish money to carry on hospitals. Then after we have done that we can point out to them what can be done in a dental way and show

them that a large proportion of the disease, pain and trouble with which they are contending every day and night is caused by the teeth. If you have any patients who have positions on those boards you would have a good opportunity to influence them and by the proper kind of argument you will in time be able to get them to influence the board of control to furnish a room like a dentist's office with instruments for filling teeth with plastics, and instruments for extraction and all the different medicaments for treating ordinary diseases of the teeth and mouth. That is the way to get at it practically and systematically. Now, after you have done that, of course you must have somebody who will help you, and go in and do some of this work, and it is easy to get young men who have just graduated; they will go in and spend an hour today and another tomorrow, and you can influence them in that way and do a great deal of good; and that is just what is as sure to come as the United States exists. And in that way we are only following in the footsteps of the old country. For instance, take Guy's Hospital, which is one of the oldest hospitals in London. There is connected with it both a medical and dental hospital. The dental college is allowed a ward in the hospital in which cases can be treated, and this has been so far years to my certain knowledge, for I visited it at least a dozen years ago. And that is only an instance.

The States of Massachusetts and Missouri have for the last two years been trying to pass laws making it obligatory on teachers in public schools to give instruction in oral hygiene. Some of the prominent dentists have been influencing some of the lawmakers and they believe they have drafted a bill which, if it can be passed, they hope will do much good. If those bills can be passed it would make it a law for any dentist or dentists that may be appointed by the Governor of the State to examine and treat and care for the teeth of the children in the public schools and charitable institutions controlled by the State. One gentleman says you cannot get at the children in the public schools. I beg leave to differ with him, because it has been done and is being done in some countries, and the way you get at it is this: Cards are printed with a blank for the child's name and age, etc., and a diagram of the teeth. As the teeth are examined these cards are filled out until all the children's teeth have been examined. The examiner is appointed by whatever power has the authority to do it, either by the Governor of the State or by the municipality, generally by the municipality. That is the way it is done in the old country; the dentist examines their teeth and notes on the cards just what operations ought to be made. These cards are given to the teacher and the teacher sees that the pupils have them; on the card is printed, viz.: "Your child should be placed in the hands of your dentist. If you have not a dentist, let us know by signing this card and returning it here and we will place your child in the hands of the municipal dentist."

One good idea suggested was that a good many of the children are taken care of by the dental college, which is true.

A statement has been made here, and I wish to correct it, that there is at the present time no charitable institution in the United States that was taking care of the teeth of the poor. About a year ago in New Haven, Conn., a wealthy man by the name of Hooker, who was the patient of one

of the leading dentists there, left a bequest that was enough to furnish rooms and pay for the treatment of the teeth of the poor, and so many hundred dollars can be expended every year. The care of the hospital is given to Doctor Gaylord and he arranges with different dentists to give service gratuitously. That has been going on for more than one year. That is something that is practical.

In the United States in 1900 there were over twenty-six millions of children of school age, between five and twenty years of age. Of that twenty-six millions over fifteen millions attend public schools. Two millions attend colleges and universities, and the rest, about nine millions, do not go to school at all. And that shows what a field there is to any one who wishes to help in this grand cause; and it seems to me the time is ripe for us to do something and to push forward in this matter. These matters have been taken up by the International Dental Association and some papers were read there in August, 1904, which created considerable interest, and I believe it will go on and on until every hospital in the United States of any consequence will have a dentist connected with it, and they will have a room fitted up to care for the teeth of the poor. I have been for several years examining medical catalogues, and find there are seventeen colleges which have a dentist on the Faculty. I have been looking over the lists to see if there was a dentist appointed on any hospital staff to see how much of a chance they were giving us in their hospitals; and up to the present time, so far as my knowledge goes—it is not complete of course because I could not have all the catalogues of all the hospitals—so all I know is from what I actually read myself, but up to the present time there were twelve hospitals in the United States that had dentists on their staffs, and Chicago leads in this respect.

In the City of Strasburg, Germany, within the last year the municipality there has erected a hospital at the cost of \$18,000, just to take care of the teeth of the indigent poor and the municipality pays dentists a regular salary for doing this work. In the city of Paris it is a part of the municipal code that the children must have their teeth examined twice every year. They have to go. They are obliged to do it; and we some day will be following right along in that identical line.

DR. G. H. WILSON: This subject seems to me one of very great importance and has been agitated throughout our country quite thoroughly of late. Our country is divided into States and each State must make its laws in such matters as these. In foreign countries a law can be made by the general government; but we cannot do that, so it necessarily follows that each State of our Union must look after its indigent poor.

I see no reason why the State of Ohio should not be one of the leaders in this direction rather than wait until some other States take the lead. I move that the chair appoint a committee of five to draft a measure for this society and present it next year.

DOCTOR PRICE: I make the motion to this effect, that it is the sense of this body that strongest pressure should be brought upon our law-makers to urge them to see the necessity of such a measure, and if it is possible, that our Committee on Legislation secure the enactment of such a law. Motion carried.

DOCTOR JACKMAN: As the hour is growing late I shall close the discussion with few words. I am gratified at what has been said and the action taken. I hope when a committee is appointed and those who accept a place on that committee will do something. I think this committee should be appointed before the close of this session and confer with this body as to what should be done; because the legislature does not meet until after our next meeting, this committee should be instructed to have a bill drafted to present to this body at the next meeting for its consideration. I want to say a word along the line of legislation and then I will have done. I don't think we will have any trouble in getting the right kind of a bill through, provided the matter is properly presented, coming as it will from the State Dental Society. Then if we work with our senators and representatives individually, I think we shall succeed. Of course this body must bear the expenses of this committee, whatever they are. It is presumed of course this committee will not spend a dollar more than is necessary to secure this legislation.

COMBINATION FILLINGS.*

BY DR. E. H. SHANNON, CLEVELAND, OHIO.

What is the ideal filling?

This question has puzzled and bewildered our predecessors and, I presume, will cause endless anxiety to our successors.

Nevertheless, the continued advance of dental science and practice behooves us to keep pace with the ever-increasing progress in all branches of our profession. We must profit by the mistakes and experiences of those practitioners who have sacrificed time and money in search of a filling, combination or otherwise, which would appeal to them as being the most practical and scientific and the nearest akin to the ideal.

There are three cardinal points in the selection of any filling material or materials, namely, durability, adaptability, and respectability. No two is complete without the other.

Using this statement as an hypothesis, we will commence to construct our filling. Of the materials at our disposal, gold is probably the most durable; tin the easiest adapted (except plastic materials), and porcelain the most respectable. Porcelain we will eliminate from this paper as being an unstable quantity. Next to porcelain, cement is probably the most respectable but is very unstable and unreliable. Gold is the next on our list and

*Read before the Cleveland Dental Society.

has the combined qualities of respectability and durability. Therefore, in gold and tin, we have the three cardinal points, durability, adaptability and respectability. In order to obtain these three requisites we must use gold and tin in combination.

The question now arises, where can one use the combination filling composed of gold and tin? My answer is, in any cavity in bicuspid and molars, but more especially in proximal cavities of bicuspid and molars. If one has not tried tin and gold in these cavities he will be most agreeably surprised with the ease of manipulation of the tin at the gingival borders and the very pleasing results obtained. I have also used tin with marked success in badly broken-down cuspids in disto-proximal cavities where the cavity extended beyond the gingival margin. One may obtain results here that are almost impossible with gold.

Some may inquire, is it possible to restore contour with tin? Is the union between gold and tin a secure one? My answer to the first inquiry is an emphatic, yes. To my mind I am firmly convinced of the cohesive qualities of tin. It is not necessary to use deep serrated instruments to accomplish the cohesion. I invariably use fine serrated instruments and depend almost entirely upon the cohesive quality. It has been a disputed question in times past as to whether the union between tin and gold was a chemical or a mechanical one. I am more in favor of the chemical relationship although there may be some possible features in the mechanical idea.

Tin, as we all know, oxidizes in the mouth. The stannous oxide which is produced forms a coating over the tin and seems to more securely seal the gingival margins of the cavity. This oxidation affects the tin only and does not discolor tooth structure.

In conclusion, why do I consider tin and gold the ideal filling for bicuspid and molars? Because first, on account of the ease and perfect adaptation of tin to the gingival margins; second, the peculiar germicidal action of tin itself and preservation of tooth structure; third, the durability of gold when brought to the masticating surface; fourth, the combining of all the good qualities of each material and their assimilation into a perfect combination with the practical elimination of all their bad features.

There is another combination filling which I would like to mention here as having proved of very great service to me. It

is the combination of cement and amalgam. This combination is indicated in extreme cases of broken-down molars where two walls are involved. If decay has progressed to the stage where the extermination of the pulp is necessary, or has already been accomplished, I treat the case accordingly and place antiseptic dressing in the root canals. The canals are then filled with chloro-percha. When I have accomplished the thorough filling or sealing of the root canals according to the best methods of procedure in vogue I may safely say that the foundation is secure. I select the largest canal and ream it out enough to easily insert an iridio-platinum wire. The wire is cemented to place and allowed to project into the tooth proper as far as the under surface of the enamel. I presume that all decay has been removed from the cavity. I next take a cement mix and build up the body of the cavity with it, especially using the cement to sustain and protect any frail or weak lines of enamel. In the cement so placed I prepare my cavity for the insertion of the amalgam, always remembering to obtain sufficient body to the amalgam to insure a strong and reliable filling.

There are other ways of composing this class of fillings but I prefer the above method to any other I know of.

A combination filling of cement and amalgam suggests itself in a great many cases where we are accustomed to resorting to gold crowns. I do not know what your experience has been but I speak candidly and truthfully when I say that I have seen very, very few good gold crowns in active service. The great majority of them fit like a Mother Hubbard jacket. I have removed a great many crowns and in every case I have found the tooth in such a condition that it could readily have been saved by a combination filling of cement and amalgam. A mechanical possibility with sanitary results.

In presenting these two combinations for your consideration I am aware that I have given you nothing new, but have traveled a path well beaten. To know was to live, and I live in the hope that some day I may know. We are not infallible, neither are we all wise but every thought or idea brought to our intellectual reservoir assumes its proper relationship with other kindred thoughts and brings order out of chaos. Thus it is that we are all seeking new thoughts and ideas that we may make more perfect our particular line of work. I am here to learn and to profit,

I hope, by the discussion that is to follow. You will batter me as you may, providing you have something to replace that which you have torn asunder.

PHYSICIAN AND DENTIST.*

BY H. H. HARRISON, D. D. S., WHEELING, WEST VIRGINIA.

The medical profession comprises all the specialties of the healing art that assist in the conservatism of the human body. It had its origin away back in the mystic ages as a speck upon the horizon, and its development was slow until the advent of Hippocrates, about four hundred years before the Christian era. After Hippocrates, came such noted men as Galen, Harvey, Jenner and others, marking the various epochs that have taken place in the great march of progress.

Within the past few years the science of medicine has made wonderful strides, largely under the impulse of chemical analysis, electricity and the microscope. They have opened up dark fields that now have the light of science shining about them, making it possible to see to an absolute certainty that which before was clothed in mists and shadows.

The dental profession, or that specialty of medicine which has for its sphere the care of the teeth and associate parts, can only trace its origin back about one hundred and twenty-five years. We know, however, that it had been practiced many years before, for gold fillings have been found in the teeth of the mummies of ancient Egypt. We have some hints of intermediate date, but nothing sufficiently reliable to be worth considering. Diseases of the mouth and teeth were doubtless treated by the general practitioner of medicine before dentistry was recognized, and its advent was, no doubt, due to the fact that its growing requirements made it a burden in his practice, and it fell to the lot of those who would take up this special work.

We are proud to say that the United States is the mother country of dentistry as Greece is of medicine, and even to-day there is no country in the world that stands so high as our own. The practice of dentistry was very crude for many

*Read before the Lake Erie Dental Society, Cambridge Springs, Pa., May, 1905.

years, and had not the recognition or construction of law, until the year 1839, when the first dental college was established in the city of Baltimore. After this time its advance and progress were very rapid, and now we have some of the best histologists, chemists and bacteriologists within our ranks—men of education and culture, bright in science, literature and art, fully qualified to occupy an honorable and dignified position among the professions of the world.

I must not take up too much time, however, in historical reminiscences, for the present is more valuable and interesting to us all.

The human organism is a wonderful piece of machinery, composed of many organs, all working together for the good of the whole. All the organs being perfect, their functions would be fully accomplished, eventuating in a perfect specimen of beauty and strength. Natural law has been violated, however, and the penalty follows in diseases of various kinds, requiring the service of the physician with his palliatives, sedatives, stimulants and tonics, the surgeon with his bistoury, saw, ligatures and explorers, the dentist with his forceps, nerve broaches, mallets and engine: all fully supplied with antiseptics, disinfectants and anesthetics, all with the intent of restoring the once strong and vigorous body to its normal condition. The part with which the dental profession is charged in this restoration is somewhat varied and complex. It is surgical, therapeutical and mechanical. The first comprises any operation in which an instrument penetrates the living tissues and any dressing pertaining to such treatment. The second refers to the application or administration of any medicament to reduce the abnormal condition, whether it be local or systemic. The third has to do with any mechanical device applied to the body to take the place of lost organs. Hence a dentist must be educated in his hands as well as his head.

I shall not presume to specify all the diseases that a dentist is expected to treat, but shall mention a few of the most prominent and important ones. Of course, caries of the teeth should be first, for it is the most prominent. For many years the various mineral acids were regarded as the exciting cause of caries, and defective structure the predisposing cause. Defective structure was supposed to exist by inheritance and

faulty nutrition. With the advance of science and knowledge this theory has been dissipated and has been substituted by the "germ theory." Microscopy shows these bacteria upon the teeth, as tall blades of grass, in the form of bacterial plaques. These plaques are nothing more than culture beds of pathogenic germs. In the development of these germs an acid is formed, which is a solvent for the lime-salts of which the teeth are mainly composed. The bacteria penetrate deeper into the tooth as the enamel and dentine are dissolved, until the whole structure is entirely destroyed. Thoroughly removing this decay, destroying the bacteria by germicides, and hermetically sealing the cavity with indestructible material, constitutes the treatment for caries of the teeth.

Pyorrhea or absorption of the alveolar process is another disease, the etiology of which is in the toils of disputants today. Some claim it to be a purely local disease, and amenable to topical treatment alone, while others believe it to be systemic in its origin, with local manifestations. It is recognized by a parting of the gums from the necks of the teeth, a loosening of the organs with a formation of pus in the pockets. The most of the profession adopt the systemic theory because it is accompanied by an alkaline reaction of the fluids of the mouth and indeed with all the fluids of the body except the urine, which is the reverse—in most cases—with the further fact that caries of the teeth very rarely occur in mouths affected with pyorrhea, showing that even the lactic acid generated by bacteria is neutralized so it can have no solvent effect upon the teeth. It is also found generally in patients with the gouty or uric acid diathesis. I am of the opinion that the lime taken into the body does not find sufficient acid to keep it in perfect solution, and minute particles are passing through the circulation, lodging in portions of the body, producing irritation of any part that obstructs its passage. The gums being hard tissue and in immediate contact with still denser structure, makes this locality a likely spot for these particles to lodge. Parenthetically, I want to say that this theory might explain the etiology of other diseases, such as neuralgia, rheumatism and even possibly Bright's disease in some of its forms. The local treatment is a thorough cleansing of the pockets by instrumentation, disinfectants, stimulants and tonics, together with a liberal use of acids and escharotics. The treatment sys-

temically should be such as would be indicated in a patient afflicted with uric acid or gout. The dietary prescribed should eliminate sweet or starch-producing elements, and should contain sour fruits and acids. It will be found that most patients afflicted with this disease are very fond of sweets and averse to sours.

Alveolar abscess comes in our list and is a result of the death of pulp of the teeth, rarely occurring from any other cause except perhaps necrosis. Its rational treatment is to make an outlet for the pus that forms within the alveolus as a result of septic poison from the decomposition of pulp tissues, and a thorough cleansing of the cavity by antiseptics. Of course, we have abscesses and other pathological conditions requiring the extraction of teeth, but this, like all other surgical operations, should be deferred until all other treatment fails. The law regarding extraction does not permit of the removal of any tooth that can be rendered useful, unless it threatens the health or life of the patient. Just here I want to accentuate the importance of the retention of the natural teeth and their proper care and attention.

In the appropriation of the food for the life support of the human body, it first passes through the dental laboratory, where it is prepared by trituration and insalivation for the further steps in digestion. You know it has been said that "a work well begun is half done." If this be true, the converse must also be true, that a work imperfectly begun can never be satisfactorily completed.

When we consider the mouth as the port of entry to the body, of all that goes to support its life, how necessary that it should be kept in perfect condition that the food may be properly prepared for its ultimate assimilation by being thoroughly masticated and kept free from impurities. I have grave doubts as to whether dentists or physicians, as a rule, have given this matter the attention that it merits. We would not permit food to be placed upon our tables with the least suspicion that it was impure. We have laws enacted and inspectors appointed to see that we are protected in this direction. We are watchful that everything we eat shall have the greatest care in its preparation and purity. Now let us look into the average mouth and see what we shall find—broken-down teeth unfit for mastication, roots of teeth, inflamed gums,

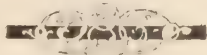
abscesses, pus, decomposed animal or vegetable products, the remains of former meals, together with pathogenic germs of almost every character that are propagated and live in such environment. The food that makes our life blood, though it be pure before entering the mouth, becomes mixed with these products of decomposition and the vitiated fluids, and all go together into the stomach. What a sorry mixture out of which to make pure blood. In view of these facts, is it not ripe time for us, who are the guardians of the health and life of our patients, to sound the alarm? When all shall recognize the infected condition of the oral secretions by the presence of these pyemic toxins, and their evil influence upon the human body, both systemic and local, then a day of sunshine will dawn upon our lives and many of the prevalent diseases that now harass us will be of very rare occurrence, if not unknown. We recognize the fact that not all the bacteria found in the mouth are pyogenic, but there are enough of this nature to cause very serious local and systemic disturbances—disturbed digestion, intestinal irritation, tonsillar and pharyngeal inflammation and appendicitis, for these pathogenic germs may find a lodgment in any part of the alimentary tract.

You ask me what advice should be given mothers about the care of children's teeth before they are taken to the dentist? There is no child so young that it may not need the attention of a dentist, and my advice to all is, that children be taken to the dentist while yet in infancy; that the mouth and teeth be carefully watched, and the first indication of trouble may be taken in its incipency. This plan familiarizes the child with the dentist and surroundings and makes it at ease and a more tractable patient. It becomes interested in its teeth, and as the years advance will not be satisfied with any thing but a pure mouth and good teeth.

If this plan were followed out there would be but few of the first teeth lost before the proper time. You suggest that evil results may follow the filling of the first teeth; that the pulps may die and abscesses follow, with a possible final result of blood poison or meningitis. These results are just as likely to follow abscess when it is the neglect of filling. However, they are of such rare occurrence that they have little weight, and indeed the evil results of the loss of the first teeth too soon would be so much greater that we cannot consider this feature.

The first teeth are placed in the mouth for a two-fold purpose—for mastication and the development of the jaws. If these teeth be removed prematurely the general system suffers, and the jaws cease development, leaving a constricted arch and insufficient room for the development of the permanent teeth. The result would be a deformed face and poor mastication, with a permanent enfeeblement of the entire body. Now, I do not mean by this that no temporary teeth should be extracted, for there are emergency cases that require such treatment, but most of these cases can, and should, be avoided by frequent examinations, and proper care. While speaking of the first teeth, it might be well to call your attention to Nature's suggestion in the dietary of children. The embryo man is born without teeth and Nature provides a diet suitable for the infantile life. Then one after another of the temporary teeth appear, intimating the necessity for a stronger diet, until twenty teeth are developed. Then, at the age of six, the permanent teeth begin to appear, with the further suggestion of a diet that requires a stronger masticatory machinery. Hence we should follow the intimations of Nature and provide the diet that she suggests. My conclusions would lead me to decide that meats are not a suitable diet for children until they have gotten most of the permanent teeth. I am fully convinced that if physicians and dentists were to teach a more exact dietary for children and it could be carried out, the human family would be stronger in every way. You know it has been said that the mental training of the first seven years of the child establishes its status for its remaining life. Why not the physical as well as the mental?

In conclusion we might elaborate upon the many sympathetic diseases that require both physician and dentist to make a correct diagnosis, but think it unnecessary, for the trend of advanced thought to-day has made its way into all fields of the healing art and has connected the two professions by an indissoluble bond.



REPORT OF BOARD OF DENTAL EXAMINERS OF THE STATE OF OHIO.*

BY DR. H. C. BROWN, D. D. S., SECRETARY, COLUMBUS, OHIO.

At the regular meeting last week of the Board of Dental Examiners of the State of Ohio, I was requested to prepare and present to this the Ohio State Dental Society a report of the work of the Board and it is only just to myself to bespeak such consideration as should be shown on account of the limited time in which to prepare this.

The present Board was appointed June 5, 1902, and since that time we have endeavored to fully and fearlessly carry out the provisions of the law as we have seen it, under which we were appointed. Since that time we have issued 583 certificates as follows:

To applicants who had filed legal applications with former Board under former law; this was done after conferring with Attorney General	55
To applicants who registered as graduates of the Ohio colleges, as they are exempt from examination up to June, 1905, session of Board..	418
To applicants passing our examinations.....	62
To applicants who had shown by evidence, affidavits, etc., that they were entitled to register under the exemption clause.....	37
To applicants for duplicates, some of these are duplicates issued where express companies have lost certificates and others where originals were lost or destroyed; this evidence was verified by affidavits....	11
Total	583

I desire here to call attention to the following clause: "Also any person or all persons who has or have been the proprietor or proprietors of a dental office or a place of performing dental work in this State, continuously since January 1, 1893."

This clause has caused a great amount of trouble; first, it was a compromise and had not this gone in we would have had a law which would have left everything wide open; second, the bill as passed April 29, 1902, had this date, January 1, 1903, instead of January 1, 1893, which no doubt was a clerical error, but it was such on engrossed copy; however, this was discovered just in time to correct by amending that section in its entirety the day before legislature adjourned.

Then our Board had its troubles with this clause by reason

*Read before the Ohio State Dental Society, December, 1904.

of persons who did not fully meet the requirements, desiring to become legal practitioners; this in itself causes many to furnish evidence varying in its character. Since our first meeting we have required all this evidence to be in form of affidavits. It may be interesting to refer to the application of an elderly gentleman who had practiced dentistry for a period covering twenty-five years and for ten years continuously, who presented an application to which he had made affidavit, together with letters and a petition signed by thirteen members of the County Dental Society of the county in which he was located, highly endorsing him as a gentleman and a competent dentist and fully qualified to do the work he was called upon to do.

We may have been easy, but not as easy as some prominent bankers and others who at present are receiving their share of public attention. We reasoned that a dentist who could secure such endorsements from thirteen of his fellow members of the profession in his own county, and understand, this was not one of the populous counties, was certainly entitled to at least some consideration. We registered him and the howl that went up from some of his professional endorsers was such as to cause us to lose confidence in some men. Moral: Don't endorse a man, then kick because your endorsement received some consideration.

In defense of this exemption clause I desire to go on record as saying, this has been a blessing in disguise, and while it has caused the Board much trouble and extra work, nevertheless it has, together with an opinion rendered by the Attorney General, given us authority to issue certificates to some deserving persons who could in no other way become legal practitioners.

While it is true we have been compelled, when all requirements were fully met, to recognize some under this clause when we felt as though they should not be registered; but on the other hand we were permitted to register a goodly number of dentists who have practiced continuously in the State for from twenty-five to as high as forty-seven years, some of these held certificates under a law in force prior to law of 1892 and had failed to register as that law, the law of 1892, required. This clause will assist very materially in cleaning up the State so far as violators are concerned. It is true this class of violators, the old practitioners, should be handled with consideration and it frequently requires several letters before they thoroughly understand everything, or act.

We have used every effort to see that the violaters complied with the law or leave the State, and as a result of constant prodding, interspersed with an occasional prosecution, we have in this manner caused more than one hundred and seventy-five persons who had been violaters for from a few months to several years to fully comply with the law.

While as Secretary I have done this work, thereby making many enemies and some few friends, as some are very grateful for having had their attention called to this, especially so when they could be registered without examination; I desire to state that our Board has accorded me their full and hearty support in all this as well as all cases of prosecution.

Our prosecutions have not been as numerous as they might have been, but we have pursued a conservative course and congratulate ourselves that every decision rendered has been favorable to the Board, notwithstanding some reports that have appeared in journal and press.

We have only prosecuted six cases, but each case has strengthened our position. The mandamus case of Elsworth Glenn was carried to the Circuit Court and the very able and exhaustive opinion of Judge Marcus G. Evans of the lower court was affirmed. Said Glenn has also appealed to the Circuit Court his other case for practicing dentistry illegally, which was a victory for the Board before a jury in Franklin County Common Pleas Court. This case is the only one pending at present, but several prosecutions will be started at the very earliest opportunity.

Prosecution is very expensive and necessarily a "trying ordeal" for both plaintiff and defendant and evidence is not always the easiest thing to obtain. Briefly as possible I will give the history of an interesting case as follows: A man whom we will call "A," holding a certificate issued about six years ago, wrote making inquiry regarding the legality of the only other dentist, whom we will call "B," in his small town.

"B" was an M. D., D. D. S., just having received his D. D. S. degree, and proposed to practice both professions. "A" understood "B" proposed to have his brother, a junior just out of college, work for him in his dental office and wrote making inquiry as to what step could be taken to stop him, and closed as follows: "A little advice on this will be appreciated by one who wants to see unprincipled and illegal dentists prosecuted. Fraternally yours, ———, M. D., D. D. S."

Shortly after this "B" wrote relative to legality of "A;" later he asked how he received his certificate, which on investigation I found had been issued on the supposition that he held a diploma from a certain well-known college. He had made affidavit to this effect and some months later I found in old letter files a certificate supposed to be signed by the Dean of the college, from which he claimed to have graduated, certifying that this applicant "had graduated with honors, etc." I was positive this was forgery and satisfied myself on that point by taking certified copy of letter and sending original to Dean.

Had written Dean previous to this, relative to the man, as "B" furnished me evidence that convinced me that "A" did not hold a diploma from this college. This matter was taken before the Board at the June meeting and after conferring with Hon. Ralph Westfall from the Attorney General's office, who is our counsel, we were informed that our law did not give us authority to revoke this certificate, but advised that we demand its surrender on evidence in our possession and that "A" cease practice in State. The Board authorized me to carry out advice of counsel, therefore, his certificate was obtained and he left State at once.

He contended that he was all he claimed to be and requested that he be given a short time to prove to our satisfaction that he was all his application claimed he was and I agreed to hold certificate for short time. This was six months ago, but have never heard from him.

The list of registered dentists in Ohio which is being prepared for distribution to such dentists is practically completed, but will not be sent to printer until our annual report to Governor is filed so that this may go in report.





CORRESPONDENCE

“DOES THE ENAMEL GROW?”

I desire in your issue to join Doctor Raffensperger's query, “Does the enamel grow?” in June, 1905, SUMMARY. I have now a similar case for investigation and what he wants to know is exactly what I want to know. I want to remove them, they are somewhat yellow. The patient and her husband have for twenty years watched them moving down (upper central incisor) until now they are very near the coronal surface, originally being near the neck of the teeth. I was taught at college that the enamel “does not grow” (1894), but the spots seem to tell another story.

I am anxious to hear and read in your journal the results of the inquiries.

C. E. KING, D. D. S.

Bristol, Pa.

AN INQUIRY.

Some time ago I had occasion to extract a superior left canine for a lady about seven months gone in the family way. The tooth had been giving her considerable trouble and she was anxious to have it out and a new plate made. The youngster (a boy) has made its appearance, with a rather bad hare-lip. Do you think the extracting at that time would cause it?

I shall be glad to hear the opinion of others regarding the case.

I. F. GUERIN.

Whitewood, Assiniboia, N. W. T., Canada.



METHOD OF REMAKING A PLATE.

Whether or not I am the originator, or the first to attempt the task of the remaking of a plate in the manner described in the article by Dr. Bessie Bennett, in the June, 1905, SUMMARY, page 448, I do not know; but if not, I never heard of it until now.

About 20 years ago, while I was practicing in Harrisburg, Ill., a young man, Mr. J. W. Russell, of my acquaintance, found his way out in the Indian Territory, and while there married a lady who was wearing an upper set of artificial teeth, and which had become broken in three pieces. With no dentist in less than 60 miles of him, and being well acquainted with me, he mailed the dilapidated set to me, and requesting me to repair them if possible, and return them to him, with my bill. The plate was thin, and was of no account, and from its appearance had been worn a long time.

It was then that I first conceived the idea of, from the old plate, making a new one. So I proceeded nearly in the same manner as described in that article, except I first drilled little holes on each side of the breaks, and with binding wire, I drew the plate close together by twisting the wire with bench tweezers, and clipping wires, and then waxed over smooth. Then I invested, teeth *down*, just up to the gum-line, and let stand sufficient time to set, then I soaped the whole surface, and poured plaster in as thick a consistency as would easily pour, put on lid of flask, and put it under flask-press, and gently run it down, and tapping the top as it settled down. After it had set long enough, I then removed the lid, and by a gentle heat over the vulcanizer, by first laying a triangular spider on top of vulcanizer, and put the flask on that, the exposed plaster side down, then I gently separated the flask, and it lifted the teeth all out of their places. Then I warmed the cast containing the teeth and plate, by first removing the teeth, and placing them carefully in their places, and then removed the old plate, and carefully packed and vulcanized, and it was a perfect success. I mailed them to Mr. Russell and stated the circumstances, and that I had made a new plate out and out, and requested him to let me know how they fit, etc. He reported that the new plate fitted better than the old one. I have made two plates in this way. It can be done, but I do not consider it very practical and advise a new impression, because in such

cases, changes have taken place in the gums and muscles of the mouth and face. And trouble is avoided as well as expense; only in these cases we would be justified.

J. G. POWELL.

Norris City, Ill.

INTERCHANGE OF CERTIFICATES.

Editor Dental Summary:

I have read the article, "Interchange of Certificates," in the June number of THE DENTAL SUMMARY, by Dr. C. A. Southwell, of Boise, Idaho, and in reply will say:

First: That the Board of Dental Examiners of Idaho has always been men of recognized merit and well-qualified dentists, also men of high standing, honesty, and good moral character, and not *political* wire pullers, and no Board in this Union ever treated their applicants more fairly than this Board has done.

Second: That all of the applicants at each Board meeting are treated exactly alike, and have the same set of questions.

Yes, Doctor Southwell was arrested and went to trial, pleaded guilty and was fined, as he states. He also went to see the Governor and pleaded, but that did him no good. He had to come before the Board the third time and he would not have received his license then had he not passed the required per cent., and his license was not granted to him through any interference or influence of the Governor.

Yes, the original instigator of the suggestion to exchange certificates has practiced dentistry in Idaho for over seventeen years. My motive for favoring the interchange of certificates is not a selfish one. I am in favor of the Asheville or Stockton resolution, not because I want to leave our beautiful State (the Gem of the Mountains), but because I believe it just and right to all.

Yours truly,

H. G. PATTERSON.

Boise, Idaho.

(We feel it is only justice to allow this reply, but with it we close the discussion on interchange of license. Personal controversies are not of interest to the profession in general.—
EDITOR.)



SUGGESTIONS

A REMEDY FOR TOOTHACHE OR NEURALGIA.

R. G. Joslin, St. Ignace, Mich.

For those occasional cases of toothache or neuralgia which defy local treatment for the time, the following has given me good results, varying the dose as conditions might require:

℞ Phenacetingr. 35
 Ext. Gelsemiumgr. 2½
 M. et ft. in chart.....No. 5
 Sig.—One when in pain. Repeat in two hours if necessary.

It will seldom be necessary to repeat in less than 7 or 8 hours. (As printed in June Summary this formula was typographically wrong.—EDITOR.)

OILING OF HANDPIECES.

Many dentists, perhaps the majority, have noticed that their handpieces often work harder immediately after oiling than before, and have marveled thereat and wondered wherefore. Under these circumstances the common practice is to add more oil to the part already treated, or to another and more distant bearing, with the result usually of not only no improvement, but of making a bad matter much worse. The seat of the trouble is almost invariably in the long-bearing of that end of the mandrel that grips the bur, and the remedy is to wipe all but dry after the first oiling, omitting a further application until later in the day—or week—according to the quantity of usage to which the machine is habitually subjected. The important fact to be borne in mind is that oil in a closely-fitting long-bearing is a lubricant only when present in small quantity; in large quantity it acts as an adhesive. In short, little oil lets the machine go; much oil holds it fast.—*Dental Office and Laboratory.*

THE WIRE LIGATURE TO SECURE RUBBER DAM.**Dr. W. Mitchell, London, Eng.**

My method of application is to adapt the rubber dam to adjacent teeth to the one or two to be operated upon, securing thus far; when the rubber dam has been carried to place by means of silk or linen ligatures the wire ligature is passed between the teeth at the interproximal space and twisted upon the outside with conveniently-pointed pliers and cut off three-sixteenths to one-fourth of an inch from the tooth. This end can be turned up toward the gum, when it becomes a good clamp or retractor for keeping the rubber out of the way. Where the cavity is very deep between the teeth a narrow chisel may be used to push the ligature down (or up) to conform to the curve or cavity margin, with the assurance that it will stay in its adapted position. A film of wax or sandarac varnish applied to the wire ligature before placing in position will insure its retaining the rubber perfectly.—*Items of Interest.*

PRACTICAL HINTS.**Frederick C. Brush.**

An excellent tool for trimming around plain teeth in vulcanite work may be made from a broken Gates-Glidden drill by sharpening it to a long, thin point. With it the gums may be festooned and all particles of vulcanite be removed from between the teeth.

A small brush-wheel with a single row of moderately-stiff bristles is excellent for polishing around plain teeth in vulcanite work. If wet soap is applied to the bristles they will retain the wet pumice and cut like a knife. Soap rubbed on a felt buff-wheel will retain the wet pumice, causing it to cut much faster and considerably lessening the time and labor of polishing an artificial denture.

An investment compound that is second to none for crown and bridge-work and all soldering purposes is composed of plaster and ashes. The ashes may be prepared for use by sifting common coal ashes until all grit is removed and a soft, flaky powder left, the powdered ashes are added to the plaster at the time of mixing, the proportions being about two of plaster to one of ashes. This compound sets very hard and apparently does not contract or

expand, nor does it burn out, warp, or crack under the heat of the blow-pipe. This compound has proven to be far superior to all mixtures containing marble dust, asbestos, sand, etc., and to many of the specially prepared ones that are on the market.—*Dental Review*.

PRACTICAL HINTS.

Dr. Will S. Payson, Castine, Me.

I have found the following very practical: For hemorrhage after extracting a tooth where there is an approximal tooth left, ligate a German silver matrix with an extension soldered to it with soft solder, letting this extension pack tightly over the bleeding alveolus. Under this extension pack tightly cotton with a styptic. Leave it on for twenty-four or forty-eight hours. This will not hinder the patient in eating.

To true lathe grindstones, hold a piece of chalk lightly against the revolving stone, using a hand-rest so that the chalk touches the bulging part. Hold the chalked part of this stone against another revolving stone in the lathe firmly with a hand-rest, thus truing one stone with another.

A simple dish for sterilizing instruments is a seamless, copper-nickeled shaking-dish such as bartenders use, costing about sixty cents.—*Items of Interest*.

A PRACTICAL HINT IN INLAY MAKING.

G. S. Hershey, Michigan City, Ind.

Prepare cavity as usual for porcelain. and in making matrix be sure to anneal well if platinum foil is used. Paint walls of matrix with a solution of shellac, leaving floor free, if an approximal cavity. Let dry and fill with foundation body, to about the contour desired, leaving room, of course, for the enamel bodies of the desired shades. Bake as usual without any precautions, such as the cutting of grooves, inserting pieces of very high-fusing porcelain, etc. On removal from furnace you will find a crevice between matrix and porcelain. Now fill crevice with enamel bodies of the desired shades and

finish as usual. The porcelain adheres only where the matrix is free from shellac. If the shellac is used correctly it makes it impossible for the porcelain to pull the matrix. It can be used with success in large restorations in the anterior teeth by painting the labial half and cervical third. This helps to preserve the contour by the shrinking of the porcelain away from the matrix, instead of toward it. Then fill with enamel body the crevice and the labial portion, which has been cut away for shading. Finish as usual. The shellac burns out at a very low heat and has no effect on the porcelain whatever. To produce a clear solution, take a two-ounce bottle half full of powdered shellac, fill with alcohol and shake well. Let it stand until thoroughly clear on top, then pour off into small bottle for immediate use. The large bottle may be filled with alcohol and put aside for future use, in same manner.—*Dental Review*.

IDEAL BRIDGE AND LOGAN CROWNS AS ABUTMENTS.

Dr. C. Julian Smith, Austin, Tex.

Taking for granted that the Logan is the ideal pin-crown is not to be controverted. I will now proceed to demonstrate my idea of making an ideal bridge by using them for abutments:

First, we make a cap to fit the root, the same as when making a Richmond crown, using platinum and 20 per cent. platinum solder in place of gold. Next, we fit a Logan crown to the root, approximately, with cap in position. I do not try to make the joint accurate, as a little space between cap and crown allows for a greater thickness of porcelain, and corresponding greater strength at this point.

Now take an impression of the mouth with cap on root, and a pin made of wood in the root canal, with projecting end, so that the pin will be held in correct position by impression material when withdrawn. After removing impression, run a little wax over pin and inside of cap, to facilitate their removal from model. Now place Logan crown in position on model, and mark on side of crown a perpendicular line, to correspond with center of ridge, and cut a heavy slot in crown, until the pin is reached; being careful to remove all particles of porcelain that might adhere to pin.

Replace crown on model and fit a piece of square iridio-platinum wire to slot and pin in crown, and bend it to follow center line of ridge. Wax together, remove, invest in plaster and asbestos and solder pin and wire strongly together with 20 per cent. platinum solder. Replace on model and wax cap to pin, remove and solder cap and pin. We now have the framework or skeleton of bridge. It is well to try in the mouth at this stage, to be certain that the parts are assembled correctly, being assured that a fit at this time means success at the end.

With your skeleton bridge now in position on model, articulate facings, wax up, and invest in plaster and asbestos. After removing wax, bend pins to close contact with bar and solder with platinum solder. The rest of the work is simply filling the spaces and contouring to shape with porcelain, being sure always to make dummies and saddle-back, as the extra bulk of porcelain is necessary to strengthen the whole piece. The result is the most artistic, and I believe, as strong a porcelain bridge as can be constructed.—*Texas Dental Journal*.

A GOOD OBTUNDENT.

L. W. Jordan, Bingham, Me.

I find that a saturated solution of potassium carbonate in glycerine, as given in the September number of THE DENTAL SUMMARY, very effective for sensitive dentine. I apply to cavity on cotton and let remain from ten to fifteen minutes. It can be used freely in the open mouth, as it is non-poisonous.

THE USE OF DIOXOGEN IN SURGERY OF THE MOUTH.

G. V. I. Brown, Milwaukee.

The *Journal of The American Medical Association*, March 18, 1905, contains an article by G. V. I. Brown, A. B., D. D. S., M. D., C. M., entitled, "A System for the Surgical Correction of Harelip and Cleft-palate," in which the author describes a method of treatment, accompanied by illustrations and the histories of a large number of successfully treated cases. In his conclusions he says:

"It is too often taken for granted that more or less sloughing

and pus formation must follow extensive mouth operations, and that surgical asepsis is impossible. In a sense, this must be admitted to be true, owing to natural anatomic obstacles to complete sterilization and the constant exposure to infection from so many sources, but notwithstanding all this, most gratifying results can be secured, and so nearly a true primary union obtained as to make its essential benefit the same even with extensive wound surfaces. With the periosteum stripped from the palate surfaces; incisions reducing circulation to the farthest safe limit; nasal secretions above in contact with raw surface; mouth secretions below, mixed, as often occurs, with gastric regurgitations, and vomited matter; only a comparatively thin veil of tissue bridging the space of the palatal separation of the bones, and at the velum, exposed to destructive influences at every movement of the tongue, or act of swallowing, it goes without saying that only the most rigid adherence to antiseptic surgical care could be effective.

"Strong solutions of poisonous, or tissue destructive, germicidal agents are necessarily precluded in the mouth. Dilution in the oral fluids renders otherwise effective solutions of practically no benefit. The histologic character of the nasal, oral and pharyngeal mucus membrane surfaces render sterilization extremely difficult, and it has been conclusively proven that animal fats, dead mucus cells and other surface coatings resist even powerful drugs to such an extent as to protect underlying bacteria, while germs on the immediate surface are destroyed. Mechanical cleansing, therefore, is a first necessity, and next to this, frequent use of non-toxic, or mild solutions of otherwise injurious germicidal agents. Preparatory preparation of the field of operation consists in scrubbing membranous, dental and other surfaces, removal or antiseptic care of teeth or roots, and at least temporary stopping of carious tooth cavities. My post-operative sheet-anchor is dioxogen,* which gives mechanical cleansing, in setting free the dead mucus cells and destroying the resistant nature of the intervening secretions, while at the same time it gives an immediate and powerful effect on bacteria in destroying their vital properties.

*I use dioxogen because in my experience it has proved the most uniformly free from acid of any of the preparations of H_2O_2 , commonly sold as such, and because an impure or a strongly acid solution must necessarily be absolutely prohibited when hourly treatments of the mouths of patients, many of whom are infants, is prescribed.

**CHLORETONE AND COCAIN IN COMBINATION FOR
EXTRACTING.****R. J. Winn, Bolivar, Mo.**

I do not advocate the wholesale extraction of teeth, or pose as a "painless dentist," but experience in a country practice has taught me that a country dentist must be master of the situation and be able to do well the extracting that is demanded of him. The preparation which I use is cocain hydrochlorate two per cent. with chloretone. I am also using a one per cent. solution and find it very satisfactory when the gums are in a healthy condition, but in abscessed teeth and diseased gums the two per cent. solution is required. I claim for the preparation that a more thorough anesthesia is obtained, the effect is prolonged, a less amount is required, and, last but not least, the gums are left in an aseptic condition; the healing is hastened by the antiseptic properties of the chloretone in the solution. I use it in all operations where such things are required in dental practice, but I wish to add that absolute care must be exercised if successful results are to be obtained. The hypodermic syringe must be in a perfectly aseptic condition and one needle used for but one patient until it has been thoroughly sterilized. I do not think the idea of taking the solution from a wide-mouthed bottle a good one, but instead it should be poured into a small dish of some kind. The needle should never be put into the bottle. I would not want to stand responsible for the results of unclean habits. The main point in using any local anesthetic is the manner in which the injection is made. I obtain best results by first injecting the medicine on the inside of the tooth about one-sixteenth inch up on the gums, right in line with the center of the root, then in the festoon between the teeth, a little on the inside. By using pressure with the finger the anesthetic effect can be forced to the outside so that there will be no pain when the outside is begun. In most cases the festoon is the only place the needle can be put on the labial side of the teeth. Care should always be taken to hold the index finger on the soft tissue above the hard gum. It is most important that the medicine should be put in very slowly and the effect watched, and if one injection is enough to bleach the gums, stop when you have the gums white. In cases where several teeth are to be taken out, after the needle is inserted the first time there need be no further pain, as the effect can be seen and injection made where the tissue

is affected and following in that manner until the desired space of gum is covered. I operate in one and one-half to two minutes, but the effect is complete in thirty seconds, and lasts from five to twenty minutes, giving plenty of time to extract from five to ten teeth without being in any hurry. In case of scaling calculus from the teeth, and particularly in pyorrhœa, I find this preparation very useful, because of its lasting effect. I do not hesitate to use it for any patient, the result being very satisfactory.—*Dental Brief*.

ROOT-CANAL FILLING MATERIAL.

N. A. DeWitt, D. M. D., Cambridge, Mass.

I use the oxychlorid powder and liquid. To the oxychlorid liquid I add about twenty-five per cent. formaldehyde; this completes the preparation of the liquid part of the canal-filling. The powder is composed of fifty per cent. of oxychlorid cement powder, and the other fifty per cent. is made up of hydronaphthol, iodoform, alum, tannin, and thymol. Each of these has its special purpose in different cases of treatment which we have, and all combined make a permanent antiseptic filling.

The preparation I use for this purpose is a cement, and is something I have compounded myself, and with which I am thoroughly satisfied. It is something which you can all prepare yourselves, and is composed of the following materials:

I take a hot instrument and cut off the point as close to the canal as possible. I now take a small pledget of cotton in my pliers, and press the whole root, filling up solid until the patient begins to complain. Sometimes the patient will complain of a little pain for the first minute or two, which is probably due to the irritating effect of the formaldehyde, coming in contact with the tissues beyond the end of the root, but this feeling passes away very quickly and is no reason for fearing unsatisfactory results. A root filling of this material can be removed, I believe, if ever necessary, just as easily as one of chloro-percha. There is no shrinkage of the material after it has been inserted in the canal, and after it has been in the tooth for a day or two, any amount of force can be applied against it without the liability of pressing it through the apical foramen—a thing which cannot be done when materials of less consistence have been used.

I have now used this preparation in my office practice for over three years, and while I have had some few failures—that is, where I have had to remove the root-filling for a second treatment of the root—I am positive it is far superior to the old way of treating teeth.—*Dental Cosmos*.

HANDY ADJUSTABLE LIGHT.

L. O. Frantz, D. D. S., Alliance, O.

Get two small awning-pulleys costing five cents each and a plumb-bob weighing one or two pounds, according to the weight of the lamp and shade. Have the lamp cord long enough to reach from the ceiling to the floor and a foot extra, or so that it will reach to any part of the laboratory, unless it is a large laboratory; then you will need several fixed this way. Run wire from rosette on ceiling through one pulley with plumb-bob wired fast, then through the other pulley fastened to ceiling, then to lamp.

In my laboratory, which is five feet by eight feet, with benches around the sides, one lamp is sufficient for all purposes. A cheap shade is made from a five-cent funnel with small end unsoldered and slits an inch long cut down the sides and bent around the socket, with a few strands of binding wire wrapped around the ends to hold them in place. Care should be taken not to get ends of wire connected if current is on at time, as the fuse wire in rosette will be blown out; better unscrew rosette cover.

Plumb-bobs cost from ten cents to twenty cents in any hardware store.—*American Journal of Dental Science*.

INFLAMMATION OF GUM TISSUE FROM CROWN SETTING.

B. J. Cigrand, Chicago.

Very frequently patients will call, describing slight pain at the gingiva of a crowned tooth. Possibly you have crowned the tooth and remember that the root was carefully prepared and the crown perfectly constructed. You cannot account for the inflammation about the basal portion of the crown. Invariably you treat this hyperæmic condition with some medicinal agent, but the patient returns with the same suffering and the color lines

unchanged. If the fundamental law of surgery is not observed, namely, "Remove the cause," the utility of the crown is seriously interfered with, and often the inflammation extends and additional complications added, ending in failure.

If you will take a tube of rubber and cut off a small ring about one-sixteenth of an inch wide and scallop it out so it will complement the alveolar ridge and slip this over the distressed crowned tooth and dismiss the patient with instructions to return the following day, the next call you may carefully remove the rubber band. Do not wipe the circumference of the root with cotton, as the gums are highly sensitive and congested, but bathe the parts with tepid water, forced against the gums from the syringe, and upon investigation you will behold nodules of cement. Remove this foreign matter and the gums will rapidly heal and hug the crown. I have observed that innumerable crowns and bridges are inaugurating just this condition, and it behooves us to be less eager to discharge the patients until we have satisfied ourselves that the final work of adjusting and anchorage of the crown and bridge has been carefully done. In connection with this do not forget that the durability of a crown and bridge largely depends on having the parts perfectly dry before you bring the crown into position. If you chance to have the time, take a crown or bridge before setting same and subject it to the critical lens of a microscope and you will be introduced to a few more causes which produce prosthetic failures.—*American Dental Journal*.

TOO MUCH BRIDGE-WORK.

B. J. Cigrand.

It is deplorable that too frequently the lateral or first bicuspid roots are extracted, and a tooth supplied by some system of bridge-work; cutting down the sound adjoining teeth, collaring them with gold, when it was within the province of dental prosthesis to save the root, and place upon it an individual crown, such as would afford the natural denture with a hygienic substitute fully in accord with physiological laws. Nature scorns to be tied up, or confined, and the present systems of bridge-work, with their yokes of gold chaining and enslaving one tooth to another, are contrary to nature, and work ill results. More especially

when the load is unbearably large, as in the case of a mammoth attachment of five or eight artificial teeth resting on two roots. How pre-eminently better to save these roots by affixing two individual crowns and supply the missing teeth by well fitting partial plate on a removable bridge denture. The profession does not yet recognize the merits of removable saddle bridges. To avoid applying bridge-work in every instance possible and attach the individual crown instead, should be the earnest ambition of every member of our profession. Yet some continue advocating large bridges on weak foundations.—*American Dental Journal*.

A GOOD LOCAL ANESTHETIC.

Burton Lee Thorpe, St. Louis.

All operations in the mouth should be preceded by the application of a local anesthetic. Nothing acts so nicely as two per cent. finely-powdered cocaine added to one ounce of *original package Campho-Phenique*. This produces a saturated solution which, when applied on a large-sized pledget of cotton to the entire mucous surface of the mouth, completely obtunds local sensation and prevents pain incident to removing calculus, polishing teeth, wedging, removing loose roots, and prevents gagging and nausea in taking impressions, applying the dam and ligating the same.—*Dental Review*.

A HINT ON GOLD INLAY MAKING.

F. W. Stephan, Chicago.

Burnish a platinum matrix as for a porcelain inlay, paying no heed to small openings in the platinum. Paint the surface of the matrix that comes in contact with the tooth to be restored, and all parts not intended to be covered with gold—where the matrix extends beyond the margins—with a thin mixture of prepared chalk and water. The matrix is now filled with the required carat of gold and the gold fused, using no flux. The gold will not flow beyond the margins. Set small inlays before removing the surplus matrix and allow the cement to set before finishing.—*Dental Review*.

CANAL REAMING.

B. J. Cigrand.

In using the Ottolengui canal-reamers, it is a mistake to employ a large one and produce a large circular opening into the root to receive the Logan post. Choose a small reamer, and by giving it an antero-posterior movement you are enabled to cut an opening of an elliptical character, and you leave the root structure thick at its lateral sides, where the major strain falls, and where the root of necessity must be the strongest. Further, this rhomboidal opening allows the Logan post to tightly hug the walls of the root canal and thus affords additional anchorage to the crown.

It is evident that a crown set as recommended cannot loosen or fracture the root unless the post first stretches, and this, I believe, is the cause of many of our crowns loosening. The primary cause does not lie hidden in this, however, but in a factor of which I will speak later. If the posts in the Logan, or in any of the full porcelain crowns, were made of iridio-platinum instead of pure platinum, there would be less likelihood of the yielding process, and the stability of the crown would be more assured.

The Brewster, Davis and Fellowship crowns are in many respects an improvement over the Logan, in as much as the pin is smaller and more rigid, admitting of crossing small rooted laterals and insuring permanent lodgment.—*American Dental Journal*.

ALCOHOL AND CEMENT.

Bathing the cavity with alcohol is not the proper final step when cement is to be used, the action of alcohol leaving a slight film which will prevent a perfect attachment. Therefore, after using alcohol renew the cavity surface with either burs or hand instruments, avoiding the margins.—*Dental Brief*.

A USEFUL HINT.

W. J. Hemphill, Dexter, Iowa.

A piece of alum of suitable size kept in a convenient place will be found useful where the operator's hands perspire freely. Draw the fingers over the alum once and it will usually be effectual.—*Dental Review*.

OBTUNDING SENSITIVE DENTINE.

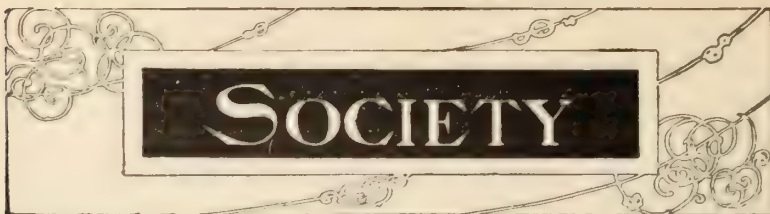
E. M. Soule, Unity, Me.

In the literature on the subject of sodium dioxide, I have never heard the obtunding effect of the drug on sensitive dentine spoken of. Possibly this is an oversight on my part, but in case no report of such use had been made, I feel it a duty to mention the matter to the profession. I have found it to work in a very satisfactory manner in all cavities of extreme and abnormal sensitiveness. Also have found it useful in removing remnants of pulps still sensitive after the use of arsenic.

The application is made by moistening the cavity freely and placing a bit of solid Na_2O_2 therein, or the sodium may be placed in the cavity and a drop of water allowed to fall upon it. A brief period of pain follows, after which the cavity may be dried if convenient and the excavation proceeded with almost painlessly. For deeper work a second application may be necessary. The second application is not followed by as much pain as the first; generally by none at all. The work should be done whenever possible under the protection of the rubber dam and the cavity well washed before inserting the filling.

The use of this remedy is in accordance with rational therapeutics. The free oxygen acts on the ends of the fibrillæ and Na OH , resulting from the reaction neutralizes any free acid which may be present. I have found this drug more effective than any of the usual preparation from zinc chloride to adrenalin with pressure and would recommend a trial.—*Items of Interest.*





FIRST ANNUAL CLINIC OF THE FRATERNAL DENTAL
SOCIETY OF ST. LOUIS, NOVEMBER 20-21, 1905,
AT THE BARNES DENTAL COLLEGE.

Special features of the meetings will be a series of lectures on "Cavity Preparation," "Methods and Principles of Packing Gold," "Methods and Principles of Finishing Fillings," by Dr. E. K. Wedelstaedt, of St. Paul; Dr. A. C. Searl, Owatonna, Minnesota; Dr. J. F. Wallace, Canton, Missouri, and numerous other members of the Black and Wedelstaedt Clubs, and other prominent men in operative and prosthetic dentistry will give clinics. Complete program will be announced later.

All ethical practitioners are invited to be present and clinic. Please send your name and subject of clinic to the secretary. Exhibit space to be obtained by application to the secretary. A cordial invitation is extended to the profession to be present and make this meeting limited in scope but limitless in importance, the best ever held in this section.

BURTON LEE THORPE, *President.*

S. H. VOYLES, *Secretary,*
3201 Washington Avenue.

AMERICAN SOCIETY OF ORTHODONTISTS.

The fourth annual meeting of the American Society of Orthodontists will be held September 28, 29 and 30, 1905, at the Stratford Hotel, corner Jackson Boulevard and Michigan Avenue, Chicago, Ill.

Papers will be presented by Dr. Lloyd S. Lourie, Dr. Alfred P. Rogers, Dr. Martin Dewey, Dr. Frederick S. McKay, Dr. Herbert A. Pullen, Dr. R. Ottolengui, Mr. Carl Werntz, Dr. Edward H. Angle, Dr. Varney E. Barnes, Dr. Richard Summa, Dr. Walter H. Ellis, Dr. Frank M. Casto, Dr. S. E. Dodson, Dr. Charles A. Hawley, Dr. A. H. Ketcham, Dr. Norman G. Reoch, Dr. William O. Talbot, Dr. Wm. J. Brady, Dr. Louis P. Bethel, Dr. G. P. Mendell.

All who are interested in orthodontia are cordially invited to take part in this meeting.

RICHARD SUMMA,
FRANK M. CASTO,
EDWARD H. ANGLE,
Board of Censors.

BOARD OF DENTAL EXAMINERS OF THE STATE OF MINNESOTA.

The next meeting of the Minnesota State Board of Dental Examiners will be held at Minneapolis, October 3, 4, and 5, 1905, at the Dental Department, State University.

All applications must be in by twelve o'clock noon, October 3rd.

Application blanks will be furnished upon request by

DR. F. S. JAMES, *Secretary*,
Winona, Minnesota.

DR. H. FINLEY HELMS.

The following is a brief biography of the late Dr. H. Finley Helms; also resolutions adopted by the Lincoln Odontographic Society:

Died at his home in Lincoln, Neb., July 31, 1905, of cerebral hemorrhage, H. Finley Helms, D. D. S., in the thirtieth year of his life. Dr. H. Finley Helms was born near Aurora, Neb., February 22, 1876. After taking his B. A. degree at the University of Nebraska, he began the study of dentistry at Northwestern University, Chicago, Ill., completing his course with the class of '99.

After practicing for a short time at Glidden, Iowa, he removed to Lincoln, Neb., where he became prominent in professional and social circles.

At the time of his death he was president of the Lincoln Odontographic Society.

He was married in December, 1902, to Miss Lillian Dobbs, who survives him.

RESOLUTIONS.

WHEREAS, In the removal of our friend and fellow practitioner, Dr. H. Finley Helms, this society has sustained the loss of a beloved member, who, by his dignity and counsel, added much to the profit and interest of its meetings, and who, as its honored president, did all in his power to promote the welfare and high professional standing of its members, and,

WHEREAS, In the association with the members of the society he ever displayed a kindness of nature and generosity of heart which will always be remembered with the warmest affection; be it

Resolved, That an expression of our sympathy and condolence be extended to his wife and relatives; and further be it

Resolved, That a copy of this resolution be given to the local papers and dental journals for publication and that they be placed upon the records of this society.

(Signed)

LINCOLN ODONTOGRAPHIC SOCIETY,
W. T. HUMPHREY,
E. G. ANTRIM,
F. D. SHERWIN,
Committee.

OFFER OF PRIZES BY THE NEW YORK INSTITUTE OF STOMATOLOGY.

With the desire of stimulating investigation in any field of activity directly relating to dental or oral science, the New York Institute of Stomatology offers two prizes for the best papers submitted to it embodying the results of such original research.

The first prize, for the best paper, will be a gold medal and \$250. The second prize, for the next best paper, a gold medal and \$100.

CONDITIONS.

- a. The papers offered for competition must be typewritten in English.
- b. Must contain not less than 1,500 nor more than 3,500 words.
- c. Must be signed by a motto or *nom de plume*.
- d. Must be accompanied by a sealed envelope marked with the same motto or *nom de plume* on the outside, containing the true name as well as the motto of the contestant within.
- e. Must be sent to the chairman of the Executive Committee, Dr. F. Milton Smith, 38 West Thirty-sixth street, on or before March 1, 1906.

JUDGES.

The following gentlemen have consented to act as judges:

Dr. C. N. Johnson of Chicago, editor of *Dental Review*.

Dr. Eugene H. Smith of Boston, Dean of Harvard University Dental School.

Dr. Wilbur F. Litch of Philadelphia, editor of *Dental Brief*.

Under the following

RULES.

First: The papers will be sent to the judges without the sealed envelopes, containing the names of the contestants, which will be retained by the Executive Committee till the decision of the judges is made.

Second: In deciding on the merits of papers offered in competition the judges will be requested to take into consideration the value and character of the research work, the results of which are presented, more than the literary character of the essays, but to give the latter due credit.

Third: The judges are expressly authorized to decide which, if any, of the papers submitted to them are of sufficient merit to entitle them to the prizes offered, or to withhold the award from all the papers if none are deemed worthy.

Fourth: Authors of the prize papers will be invited to read their essays before a meeting of the Institute, as will the writers of other papers of especial merit, the Institute reserving the right to the first publication of all papers offered in competition.

Papers not used will be promptly returned to the writers. Those read before the Institute will be as fully discussed as possible and when published will be adequately illustrated.

For further information, address

DR. F. MILTON SMITH,

38 West Thirty-sixth street, New York, N. Y.

SOUTHERN CALIFORNIA DENTAL ASSOCIATION.

This society will hold its eighth annual meeting in Los Angeles, November 6-7-8, 1905.

C. M. BENBROOK, *Secretary*.

Los Angeles, Cal.

PHOTOGRAPHS WANTED.

Photographs of the following dentists, who were among the organizers of the Northern Ohio Dental Association, are wanted for a history of the organization, now being compiled. Photographs will be returned after copies are made.

Dentists who can supply any of the pictures will confer a great favor by so doing:

L. C. Ingersoll, E. Merritt, J. A. Robinson, T. McCune, Joseph Willson, William Fiske, Henry Slosson, J. G. Moore, E. G. Burger, J. G. Rockwell, M. J. Dickerson, D. L. Norcross, J. E. Atkinson, W. B. Ingersoll, William E. Dunn, C. F. Ingersoll, S. P. Huntington, C. S. Pleasants, L. F. Fox, D. F. Kuapp, A. A. Harris, W. F. Robinson, J. G. Willis, E. Chidester, C. P. Bailey, A. Barrett.

Send photos to Dr. H. L. Ambler, Permanent Building, Cleveland, Ohio.



AFTERMATH

PERSONAL AND MISCELLANY.

Retired from Practice.—Dr. C. M. Lathrop, of Toledo, Iowa, June 21st; Dr. W. J. Stapish, of Anderson, Ind.

Law Wanted.—What is wanted is a law compelling the painless dentist to square the deed with the word.

Dentist Injured for Life.—Dr. J. H. Boswell, of Mayfield, Ky., was thrown from a train and his left knee-cap split, causing life injury.

Dental Students Fail.—Fifty-five out of 324 applicants for dental certificates in Pennsylvania failed; two were rejected for cheating.

Dentist Suicides.—Dr. H. J. Herman, a Chicago dentist, committed suicide by stabbing himself above the heart with a large pocket knife.

Weddings.—Dr. McCormick, of Xenia, and Miss Stella H. Aukency, of Alpha, June 25th. Dr. Wm. W. Taylor and Miss Elizabeth W. Poindexter, both of Warrenton, N. C., July 5th.

Connecticut State Board Reports Results of Examination.—Thirty-four took the examinations and twenty-two passed. Two failed to appear.

Butler County Dental Society.—The following officers were elected for the year: President, M. D. Kottraba; vice-president, G. H. Jackson; secretary and treasurer, H. A. McCandless.

Minnesota State Board Reports.—Fifty-three candidates out of a class of seventy-four were able to pass examination by the State Board of Dental Examiners of Minnesota given in June.

Dental Editor Married.—Dr. Herman Prinz, St. Louis, one of the editors of The Dental Era, was married July 5th, to Helen Lilye Koop, of St. Louis. We extend hearty congratulations.

Falls Under Train.—Dr. Joseph C. Frey of Chicago, in attempting to catch a train, June 21st, was thrown under the train. His left foot was so badly crushed that it was necessary to amputate it at the instep.

Died in Dental Chair.—Mrs. Myron Gill of Kalamazoo collapsed in a dentist's chair after eight teeth were removed and died under chloroform.

Massachusetts State Board Reports.—Out of 111 candidates for certificates to practice dentistry in Massachusetts, 66 received certificates, and 45 failed to pass the examination.

Dental Examiner Named.—Governor Hanly of Indiana has appointed Dr. W. H. Shaffer, North Manchester, as a member of the State Board of Dental Examiners.

Died in Dentist's Chair.—Percy Mount, assistant cashier of the First National Bank of Ord, died from the influence of chloroform while in a dentist's chair.

Dentist not Guilty of Murder.—The jury in the third trial of Dr. George R. Hoch, charged with the murder of Dr. L. A. Gebhardt, both of New Ulm, Minn., on November 1, 1904, returned a verdict of not guilty August 1st.

Dr. Burton Lee Thorpe Honored.—The Universal Exposition has awarded Doctor Thorpe a commemorative diploma and medal in consideration of his being the originator of the Fourth International Dental Congress recently held in St. Louis.

New Dean.—Dr. Lewis E. Ford, Los Angeles, is the new dean appointed to succeed Dr. Garrett Newkirk in the College of Dentistry, University of California. Doctor Newkirk has moved from Los Angeles to Pasadena, Cal.

Novel Toothpick Patented.—James L. Smith, Princeton, Ind., has patented a toothpick having a flattened brush at one end so that the implement can be used not only for taking out things lodged between the teeth, but also for brushing the surface clean.

Dentist Found Guilty of Murder.—Dr. Louis Zorn, of Kansas City, was found guilty of murder in the second degree and sentenced to fifteen years in the penitentiary. He shot and killed Albert Secrest, a tenant, in 1903.

Secretary of State Board Issues Report on Examination.—Dr. H. C. Brown, secretary of the State Board of Dental Examiners, has issued a list of the successful applicants for dental certificates. Sixteen out of 21 candidates who took the examination passed.

Michigan State Dentists' Association.—The following officers were elected: Dr. J. J. Green, Ionia, president; Dr. Alfred LeGro, Three Rivers, vice-president; Dr. E. B. Spalding, Detroit, secretary; Dr. C. H. Worboys, Albion, trustee.

South Dakota Dental Society.—Officers were elected for the ensuing year as follows: President, Dr. H. H. Jackson, Flandreau; vice-president, Dr. Wilson Miller; secretary, Dr. W. F. Price, Vermillion; treasurer, Dr. Charles McDowell, Alexandria.

Chicago Dentist Elected Dean.—Dr. John N. Sandblom, of Chicago, has been elected dean of the dental department of the University of Christiana, Norway. Doctor Sandblom is abroad at present, but will return to Chicago to wind up his affairs.

Colorado State Dental Association.—Officers were elected as follows: President, Dr. W. T. Chambers, Denver; vice-president, Dr. J. Allen Smith, Colorado Springs; secretary, Dr. B. Frank Gray, Colorado Springs; treasurer, Dr. William Smedley, Denver.

Dentist to Lecture in Europe.—Dr. John N. Sandblom, president of the Scandinavian-American Dental Society of Chicago, has gone to Europe to give a course of lectures and demonstrations in advance dentistry in each of the three Scandinavian capitals.

Try It.—Those scientists who assert that dental work may be made painless if the patient will only look steadily at a blue light have a lot of things to explain. To a man with the toothache all things look blue, and yet he keeps the toothache.—Ex.

Dentist's Wife Goes on Stage.—Blanche Woolsey Eagleson, wife of a dentist in Lafayette, Ind., will go on the vaudeville stage, having signed a contract for the coming season. Mrs. Eagleson has been popular in amateur theatricals in that city and has made a specialty of coon songs and dialect reading.

Wisconsin State Dental Association.—The new officers are as follows: President, Dr. F. G. Vanstratum of Hurley; first vice-president, Dr. M. L. Christenson of Oshkosh; second vice-president, Dr. Mary Hastings of Oshkosh; secretary, W. H. Mueller of Madison; treasurer, Adolph Cropper of Milwaukee.

Governor Appoints New Board.—The entire Board of Connecticut State Dental Commissioners completed their term July 1st. Governor Roberts named the following new ones: Gilbert M. Griswold, of Hartford; Alfred E. Fones, of Bridgeport; Howard G. Provost, of Winchester; David W. Johnson, of New Haven; Edward Prentiss of New London.

Burglaries.—Teeth valued at several dollars were stolen from the dental office of A. L. Button of Saginaw, Mich., June 16th. Burglars entered the office of Dr. J. H. Peaslee of Marinette, Wis., and secured \$100 worth of gold. The office of E. C. Babcock of Kaukauna, Wis., was entered and \$40 worth of gold taken.

Dentists Want New Law.—At a banquet given by the graduating class of the National Medical University of Chicago, June 23rd, at which 500 dentists, alumni of the college, were present, a committee was appointed to draft a bill to present to the next legislature requiring all future dentists to be graduates in medicine.

Dentists to be Arrested.—E. Conn, James Nordlung and S. C. Hornef, dentists, Oakland, Cal., have been charged by Philip M. Langan, representing the State Board of Dental Examiners, with practicing their profession without procuring a license from the Board. Warrants have been issued.

Surgeon Says Gray Matter Develops at Expense of Teeth.—Sir Oliver Lodge, the distinguished scientist, in opening the Dental Hospital at Birmingham, said that the general neglect of teeth was re-

markable. An eminent surgeon told him that the bad teeth among civilized races was due to the development of the brain. It appeared that brain and teeth could not exist together.

Italian Arrested for Taking Gold.—On the arrival of the steamship *Italia* from New York on June 12th, at Naples, the police arrested, at the request of the American consul, Dominico Campolli, who is charged with stealing two bars of gold worth \$12,000, the property of The S. S. White Dental Manufacturing Company of Philadelphia. The bars are alleged to have been found in his baggage.

Maine Dental Society.—The following officers were elected for the year: President, F. H. Moore, Calais; vice-president, George E. Dow, Portland; secretary, H. A. Kelley, Portland; treasurer, E. J. Roberts, Augusta; librarian, E. Bacon, Bar Mills; executive committee, F. E. Maxfield, Bangor, chairman; W. H. Bolton, Portland; F. H. Mead, Bangor; W. R. Bibbler, Eastport; W. S. Payson, Castine.

National Association of Dental Examiners.—Officers were elected as follows: President, Dr. H. W. Campbell, Virginia; vice-presidents, for the west, W. O. Hetrick, Kansas; for the south, F. A. Shotwell, Tennessee; for the east, George E. Mitchell, Massachusetts; secretary and treasurer, C. A. Meeker, New Jersey. This is Secretary Meeker's fifteenth year in office.

Married.—Dr. O. G. Mingledorff of Dublin, Ga., and Miss Bessie Lanier of Greyton, married August 1st. Dr. White of Frankton, Ind., and Miss Gertrude Wilder of Indianapolis, Ind., married June 16th. Dr. Fred B. Smalis of Keokuk, Iowa, and Miss Mary A. Warwick, June 15th. Dr. Byron A. Smith of Champaign, Ill., and Miss Mary A. Hefferman, July 16th.

Vanderbilt and University of Tennessee Are Consolidated.—Negotiations have been consummated whereby the faculty of the University of Tennessee and the Dental Department of Vanderbilt have been consolidated. The Tennessee Dental College was not connected with the other departments at Knoxville, but was opened and run by independent parties, with Dr. J. P. Gray as Dean.

Dental Examiners Named.—Governor Ferguson, of Oklahoma, has announced the appointment of the Board of Dental Examiners, which is the same as last year with the exception of H. H. Pendleton of Norman, taking the place of Dr. L. A. Kelsey, who resigned. The appointments had been held up because of charges which had been filed against A. C. Hixon of Guthrie. The charges were evidently not substantiated.

Deaths.—Dr. S. C. Edison, of Fergus Falls, died June 5th of pneumonia. Dr. Michael C. Sheehan, of Detroit, Mich., died June 8th of rheumatism of the heart; age 47 years. Dr. John Welch, of Portland, Oregon, died July 11th; age 69 years. Dr. Wm. M. Hendin, of Pater-son, died June 19th, of Bright's disease; age 27 years. Dr. George P. Kingsley, of Freeport, Ill., died July 6th; age 72 years. Dr. Carle-

ton A. Smith, of Ithica, N. Y., suicided by shooting, July 6th; age 58 years.

Virginia Dental Association.—Officers were elected as follows: Dr. J. Lewis Walker, of Norfolk, president; Dr. Edward Eggleston, of Richmond, first vice-president; Dr. F. A. Lee, of Lynchburg, second vice-president; Dr. E. J. Applegate, of Newport News, treasurer; Dr. George F. Keese, of Richmond, secretary, and Dr. J. Hall Moore, of Richmond, corresponding secretary. The following executive committee was elected: Dr. A. L. Stratford, of Richmond; Dr. W. H. Moseley, of South Boston, and Dr. William Pilcher, of Petersburg.

New Jersey State Dental Society.—Officers were elected as follows: President, Dr. Joseph E. Duffield, of Camden; vice-president, Dr. M. R. Brinkman, Hackensack; secretary, Dr. Charles A. Meeker, Newark; treasurer, Dr. Henry A. Hull, of New Brunswick; executive committee, Dr. J. G. Halsey, Swedesboro; Dr. Walter Woolsey, Elizabeth; Dr. W. A. Jaquette, Salem; Dr. Harvey Iredell, New Brunswick; membership committee, Dr. Franklin Rightmire, Paterson; Dr. Charles H. Dilts, Trenton; Dr. William H. Gelston, Camden; Dr. W. F. Naylor, Somerville.

National Association of Dental Faculties elected officers as follows: Dr. J. H. Kennerly, St. Louis, president; vice-president, John I. Hart, New York; secretary, George E. Hunt, Indianapolis; treasurer, H. R. Jewett, Atlanta; executive committee, D. J. McMillan, Kansas City; L. P. Bethel, Columbus, O.; J. B. Wilmot, Toronto; R. M. Sanger, New York; H. B. Tileston, Louisville; ad interim committee, S. H. Guilford, Philadelphia; M. C. Marshall, St. Louis; foreign relations, G. V. Black, Chicago; W. F. Litch, Philadelphia; D. R. Stubbefield, Nashville; William Carr, New York.

Two Dentists Appeal from Judgment of Justice Court.—The case brought against W. C. Walker and Charles Carlisle of Sioux Falls, S. D., by the State Board of Dental Examiners, for practicing dentistry without a license, was tried in Justice court, July 18th, and each was fined \$50. Their attorneys gave notice of appeal, their bonds being fixed at \$500. The contention of the defense is that, according to the State dental law the Board is required to issue a license to a dentist holding diploma from a reputable dental college or from the dental department of a university. That even where no such diploma is held the proof of practice for three years under the instruction of a competent dentist makes one eligible to take the State examination.

Deaths.—Dr. J. D. McKeen of Tulton, Ky., July 30th, of pneumonia and paralysis; age, 64 years. Dr. John A. Pepper of Knoxville, Tenn., July 30th, of dropsy; age, 55 years. Dr. Samuel S. Matthers of Columbus, O., June 19th, of paralysis; age, 65 years. Dr. Henry E. Mann of New Bedford, June 18th, of heart disease. Dr. Anderson R. Miller of Kinston, N. C., July 22d; age, 76 years. Dr. H. J. Herman of Chicago, suicided by stabbing himself, July 14th; age, 37 years. Dr. I. C. Hoke of Bridgeport, Ill., died July 19th from drinking lemon extract. Dr. Tevis M. Gray of Columbus, O., died July 23d; age, 61 years. Dr. Edw.

Rule of Kansas City was instantly killed by a street-car, July 19th; age, 61 years. Dr. Marion Warner, Eureka, Ill., was shot and killed by a drunken passenger while on a train, August 5th; age, 42 years. Dr. Charles E. Francis, of Stamford, Conn., died July 2d from complication of diseases; age, 78 years.

Eminent Dentist Wins Compliment.—Dr. E. K. Wedelstaedt, of Buffalo, who, because of his skill as a dental surgeon, has had charge of the clinics of the National Dental Association in the buildings of the University of Buffalo, received a dubious compliment for a charitable act. After some hours of hard work preparing for the clinics he stepped into the infirmary in his shirt sleeves and otherwise negligee in attire and found there a man holding his jaw with a diligence that spoke eloquently of pain. "What's the matter with you?" demanded the dental surgeon. "Sure an' it's meself that has the turrible tooth," answered the sufferer. Doctor Wedelstaedt selected forceps of proper caliber and lifted out the throbbing tooth with all the skill he could command. "How do you feel now?" he asked. "Faith, me boy," answered the patient, "It's yourself that has the makings of a blamed fine dentist. Ye went at that tooth just right. Kape right on and study hard and ye'll yet along all right."

National Dental Association.—The officers elected are as follows: President, M. F. Findley, Washington, D. C.; vice-president for the south, Frank Holland of Atlanta; for the west, William Conrad of St. Louis; for the east, L. P. Bethel, of Columbus; recording secretary, A. H. Peck of Chicago; corresponding secretary, C. S. Butler, of Buffalo; treasurer, V. E. Turner of Raleigh, N. C. The executive council is again headed by its originator and first chairman, who was by acclamation re-elected to the office he has held during the past six years, Dr. H. J. Burkhart, of Batavia. With him on the council are: Charles McManus of Hartford, Conn.; J. Y. Crawford of Nashville, Tenn.; F. O. Hetrick of Ottawa, Kan., and E. K. Blair of Waverly, Ill. The executive committee, as elected for three years, is as follows: J. D. Patterson, of Kansas City; H. D. McFadden, of Philadelphia, and J. D. Greiver, of Baltimore. Atlanta, Ga., was chosen for the next convention after some discussion. The third Tuesday in September, 1906, is the date fixed.

Nebraska's New Dental Law.—Under the new law the applicant for license must be a graduate of a reputable dental college, or have served an apprenticeship of five years in the office of a legal practitioner, having previously graduated from a high school or similar institution of learning. No temporary permits will be granted except to those who are eligible to a permanent license. When the dental secretaries are not in regular semiannual session, any one of the secretaries may examine an applicant and on his recommendation the Board may furnish him with a temporary license to practice until the next regular meeting of the dental secretaries, at which time the temporary license will expire, and the holder thereof must appear and take an examination for permanent license. No dentist who was a legal

practitioner in the State before July 1st, will be affected by the new law, but there are some who have not complied with the provisions of the old law, and are therefore not legal practitioners, and these must comply with the new law. Any information concerning the new law or matters connected with the Dental Board will be furnished by addressing the secretary. The new Board of Dental Secretaries met in Lincoln and perfected an organization with the following officers: Dr. D. A. Meese, Auburn, president; Dr. C. F. Ladd, Lincoln, secretary; Dr. J. H. Wallace, Omaha, vice-president and treasurer. The other members are Dr. W. T. Smith, Geneva, and Dr. C. S. Parker, Norfolk. The new law, regulating the practice of dentistry in Nebraska, passed by the last legislature, went into effect July 1st, and by a ruling of the Board, all dentists now practicing in the State, who have not registered with the Board, can have the privilege of doing so until September 1st, without taking an examination. After September 1st, all dentists desiring to practice will be required to take an examination before the Board. The Board will meet in regular session at the capitol building during the months of May and November of each year, at such time as they may designate, and will meet at such other times and places in special session as they may deem advisable. Applicants for permanent license to practice dentistry will be examined only during the regular meetings. After September 1st all applicants must pass an examination before a license will be issued to them to practice. This license must be recorded with the county clerk in the county in which the applicant desires to practice within six months from date of issue, or it is forfeited.

Recent Patents of Interest to Dentists.—

- 792836—Dental obtunder, Burt A. Loveless, Fulton, N. Y.
- 792618—Artificial denture, Finis E. Roach, Chicago, Ill.
- 792669—Headrest attachment, Jacob S. Schaff, Desplaines, Ill.
- 793259—Pocket dentifrice holder, Charles W. Wilson, Toledo, Ohio.
- 793681—Headrest for dental chairs, Frank Ritter, Rochester, N. Y.
- 793682—Rubber dam holder, John J. Rojo, Mexico, Mexico.
- 795084—Artificial upper denture, Louis L. White, Portland, Ore.
- 793123—Physicians' adjustable chair, Victor A. Fagerstrom, Rockford, Ill.
- 793233—Lamp-holding bracket for dental chairs, John J. Ryan, Paris, France.
- 12365—Re-issue, dental plugger, Alexander W. Wimmer, Chicago, Ill.
- 793999—Means for securing artificial teeth to dental plates, Leo E. Evslin, Paris, France.
- 794006—Dental drill handpiece, George R. Gossling, Walton-on-Thames, England.
- 797097—Handpiece for dental engines, George R. Gossling, Walton-on-Thames, England.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

REGULAR CONTRIBUTIONS

THE LOGAN CROWN—HOW IT SHOULD BE FITTED TO THE ROOT.

BY DR. A. P. JOHNSTON, ANDERSON, SOUTH CAROLINA.

The Logan crown, perhaps, is the most universally used of any ready-made crown on the market to-day. It justly merits popularity. It is so easy to crown a root with this crown so as to present a good appearance if not inspected too closely, but to grind to a perfect fit is quite a difficult operation. In fact, I believe I would not be far wrong if I were to say it is seldom done. This crown is so well known to all that I will not say more in its praise, but will proceed to tell how it can be fitted to the root in a very satisfactory manner and at the same time so easily done that any one can perform a very creditable operation.

Allow me to say that the fitting of porcelain crowns in the manner I shall describe is entirely original with me and as far as I know no one besides myself has mounted the Logan crown in like manner.

Now I will not discuss the proper way to prepare the root for the reception of a crown, but merely wish to say that I prefer to grind face of root to conform to the gum margin and to enlarge pulp canal so as pin of crown will fit the canal snugly. The labial margin of root should be ground a little under gum so as to present an esthetic appearance. In selecting crown, choose one whose base is a fraction larger all around than the face of root. Grind to fit as perfectly labially as possible and to rest or touch on its lingual surface. No attention need be given to the mesial and distal margins.

Now adapt a thin piece of platinum or 24k gold to the face of root, pierce a hole through it into canal and with a little wax

previously melted on base of crown, force crown to proper place on root, being careful to see that it is fitted just as you wish it, that the occlusion is just right, etc. When wax is hard, withdraw tooth from crown very carefully and matrix of platinum or gold should come away, adhering to crown. Now make a copper sheath to fit loosely the post of crown and slip it over the post until it comes in contact with floor of matrix. Clip off the end of sheath just beyond the end of post; this will close tube or sheath so that none of the plaster investment will crowd up into tube and interfere with the movement of post, as will be understood further on.

Now we come to the investing of crown. With some good investing material that sets quick, is hard, and will stand the fire, the crown is invested in the cap of forceps as shown in the illustration. (Fig. 1.)

If properly invested and separated, when the handles of the forceps are opened the crown will be held fast in one cup, while the matrix and copper sheath will be in the other cup (Fig. 1), thereby representing the face (matrix) and canal (copper tube) of root to be crowned. Now in closing the cups together again we have the crown with post, matrix and copper tube all in the same relation and position as when the crown was fitted to natural root. Now there should be no trouble about the crown fitting the root when done and ready for its final setting.

Now the investment is set and by warming the cups the least bit, separation of the cups is easily done by opening the handles of forceps. Boil out every trace of wax and dry out investment carefully, slip a button made of Jenkins' porcelain (I recommend Jenkins' inlay porcelain for this work because it is easier to mould than any I have tried) over the post of crown (see Fig. 1-e) and bring the handles of forceps closer together. Then heat the cups very gently until button becomes quite soft and plastic (see Fig. 3). While thus heated, close the handles of forceps together until the jaw of forceps rests on the set screw (see Fig. 1-f), which had been set to place before the separation of cups. If this is done properly the porcelain button will be nicely moulded around the post and over the face of matrix and if crown was clear of all wax and heat carried high enough, the porcelain button will be found to adhere to crown as if fused on to it.

Now strip off matrix and grind circumference of crown to conform to the root. Result: Crown will fit root as perfectly as it is possible to make it fit.

The above method applies to the second bicuspid as well, but to fit a porcelain crown on the first bicuspid and molar the procedure is a little different. Thus, after the root has been prepared and cap fitted well down into the pulp chamber, puncture it over the mouth of the palatal root canal, if it is an upper molar, and push posts that have already been prepared into the canal to a depth sufficient to insure a firm anchorage. Now this post should be bent at an angle so when placed in root the end to receive crown will stand up perpendicular from the center of pulp chamber to a height of about that of the crown.

Post and cap being in place on root, secure it with some hard wax and withdraw, invest as if to solder, but instead of soldering build up pulp chamber and around post with Jenkins' porcelain and fuse (Fig. 2-d). Then replace cap and posts on root and burnish around and over face of root again to insure a better adaptation. Now while this cap is on root take an impression in plaster. (You will notice the reason for posts extending up high enough to come away with impression.) Then an impression of the occluding teeth must be taken. In making the model from the impression containing the cap and post do so with some good investing material. (The reason for this you will notice later.) After models have been mounted on an articulator, cut post off so that it will be long enough to pass up into the hole in a diatoric crown and yet be short enough to let said crown rest on cap after it has been ground to occlude. When this part of the work has been done properly the crown is secured to place with hard wax. The model is then taken from articulator and all of it cut away until only enough is left to hold post and cap in place while it is being invested in cups (Fig. 2). Crown and post are now invested in cups of forceps just as was one in the case of the incisors, except in this case you do not need any copper tube. The post in this case remains in one cup, while the crown is in the other when separated (see Fig. 2). Do not separate until the investment is quite hard, but after you have separated the cups, trim away the plaster so that the crown can be worked out of the impression and yet will fit the impression snugly when replaced without rocking. Now clean the crown

of all wax after it has been taken from the cup and fill the hole in crown with porcelain body, building it up over the whole base of crown until sure of a surplus, then put it in a furnace and fuse. Here again use Jenkins' inlay porcelain. Now replace crown again in its impression in cup and proceed to fuse the parts together just as was done in the case of the incisors. When done, we will have an all-porcelain crown moulded to fit in as perfect a manner as can be done, and as strong a crown as can be made of porcelain.

The intervening porcelain has been under pressure all the while, thus bringing the shrinking feature down to a minimum, insuring against air bubbles and accomplishing the same results in a much shorter time than soldering a facing to a post and building out the remaining portion of crown with porcelain body and fusing. Some of the advantages claimed for this method are a perfect adaptation to root, easily done with any good soldering outfit, added strength to a Logan crown, saving of time in the making of *all porcelain* molars.

METHOD OF RESTORING WITH PORCELAIN A BADLY-DECAYED LATERAL.

BY SIDNEY G. MAIN, D. D. S., ISPHEMING, MICHIGAN.

The following method of restoring with porcelain a badly-decayed lateral may be of interest to readers of THE SUMMARY.

Decay had destroyed the mesio-approximal, most of the lingual and the disto-approximal surfaces, leaving only the labial wall and incised edge of tooth. The shape of the cavity was such that one matrix could not be burnished and removed without distorting it.

Accordingly, one-half the cavity was filled with cement which was allowed to thoroughly harden.

A porcelain inlay was then made for the other half of the cavity, the matrix having been burnished against the square wall of cement at the lingual. The inlay was then set and the cement removed from the opposite half and an inlay made in the same manner, burnishing matrix this time, at the lingual, against square wall of first inlay.

Setting the second inlay completed the operation and a tooth was thereby well restored which at first sight seemed must be sacrificed for a crown.

IS A PERFECT FILLING POSSIBLE?

BY G. S. JUNKERMAN, M. D., D. D. S., CINCINNATI, OHIO.

Dental surgeons who have attained through practice and experience a proficiency in the insertion of fillings for the preservation of the human teeth have no doubt at times at least flattered themselves that they have inserted some fillings that are perfect or at least were perfect at the time of their completion. The elements that constitute a perfect filling seem to have left debatable ground and advanced to the exact position where all authorities have agreed that there can be no difference of opinion. With filling materials, however, the situation is different, as evidenced by the proceedings of dental societies in their discussions of the relative qualities of the different filling materials and also as evidenced by the various text-books which have been accepted by the profession and in whose texts varying opinions is the rule. A filling material which will make a perfect filling in the present accepted sense of that term does not necessarily make a perfect filling material, since it must also maintain that function for at least a reasonable length of time through the vicissitudes that attend its requirements in the human mouth. Therefore, a reasonable and logical conclusion is reached that a perfect filling may become a very imperfect therapeutical filling and that a perfect therapeutical filling naturally is the goal sought by the dental surgeon.

Having established what we understood by a therapeutical filling and associating with this thought the various materials used by dental surgeons the principal of comparative therapy obtrudes itself, made manifest by the number of these materials in present use. All of these materials, however, have been selected upon a fundamental principle that their adaption to the cavity absolutely annihilates the cavity to the exclusion of *ingress* of any extraneous material or *egress* of any confined material. This applies to matter or incipient life in a solid

liquid or gaseous state. This entrance or exit must impose no condition and refers to permeation either through the material itself or between the material and the border of the cavity and assuming also perfect adaptation has been attained. Upon the basis of our filling materials, fulfilling these requirements has almost the entire science of dentistry been built; for the filling of teeth constitutes the larger part of dentistry. Upon this principle we fill teeth today as we did fifty years ago, according ourselves the credit of saving them with ability to select and adapt material and annihilate space with it. Our failures have been attributed by other dentists to imperfect work and our successes have clothed us in assurance and framed our reputations for skill and ability. We have seen perfect operations fail and, though dismayed, have remained in ignorance of the cause. Imperfect operations have surprised and astonished us by their great durability. We dislike to acknowledge that teeth are saved in spite of our operations instead of by might of them.

A few experiments have caused me to write this paper and style it "Is a Perfect Filling Possible?"

Experiment 1: I took five cavities properly prepared and placed in the bottom of each a small amount of Caulk's nerve capping which contains a considerable amount of formaldehyde. I inserted three of these fillings with soft foil, the other two with cohesive foil. I then used an emery-cloth disc with the engine to finish the fillings. The friction of the disc heated the filling and a strong odor of formaldehyde became very perceptible.

Experiment 2: I filled five cavities previously treated with Caulk's nerve capping, with five different kinds of alloy; permitted the alloy to harden and placed successively each tooth upon a little stove. In each case a strong odor of formaldehyde was present after the temperature of the tooth had reached only a reasonable degree of heat.

Experiment 3: I filled five cavities as in the previous experiment, only using five different kinds of cement. In each case a strong odor of formaldehyde was present upon slight heating.

Experiment 4: Gutta-percha was now placed in three cavities. Heating brought a strong odor of formaldehyde. With a thoroughly formaldehyde sterilization of my ideas I answered the question *a perfect filling is not possible.*

A CASE OF PHOSPHORUS NECROSIS OF THE INFERIOR MAXILLARY, DUE TO MATCH CHEWING.*

BY W. H. VAV DEMAN, D. D. D., D. D. SC., TOLEDO, OHIO.

Last February I was called in consultation to examine the mouth of a patient seemingly suffering from an acute osteomyelitis. The patient had been having chills with some temperature and great pain in the lower maxillary for some four or five weeks; no appetite, general debility, and a breath that was almost intolerable. The lower central and lateral incisors had been extracted, after having been treated by his local dentist for pyorrhea. The mucous membrane over the entire mouth was congested, but especially so from first molar to first molar, labially and buccally, in the inferior maxillary. There was that blue-red and glistening appearance in the region of the bicuspids on either side, and from this region the pain, which was not constant, seemed to originate. The cuspids and bicuspids were loosened and elongated with a fistula established below the cuspid on the left side. The alveolar plate over the cuspid and first bicuspid on the right side seemed to be entirely separated from the teeth. Upon being questioned, the patient stated that he had long been in the habit of chewing matches and had many times gotten the phosphorus between his teeth and ignited same. Such testimony was sufficient to confirm our belief that the infection was due to phosphorus. Whereupon, the patient was sent to the hospital and put to bed. His temperature continued high and pain was intense. The entire lower maxillary was poulticed with hot witchhazel and the mouth washed frequently with a solution of sodium bicarbonate. Three days later there was very little pain and no temperature, but there was not the slightest improvement in the

*Read before the Toledo Dental Society, June 9, 1905.

condition of the gums, and pus was oozing up and about the necks of the teeth and through the fistula, which had the odor of phosphorus.

On the tenth day the patient was operated upon. We found the entire exterior plate of the inferior maxillary from molar to molar and well down to the ramus necrosed. The inferior dental canal and its contents wasted, until, when scraped out, it was large enough to admit the little finger.

The teeth back of the molars were removed (most of them being picked out with the fingers and the bone thoroughly curetted. The cavity was washed with boric acid solution and packed with iodoform gauze. It was then dressed daily, for three weeks, and at the end of the fourth week the patient left the hospital, the wound practically healed. Five weeks later everything seemed favorable and a partial denture was put in place. This is a temporary plate of course and was constructed of vulcanite, with heavy clasps about the molars on either side. Later we hope to put in a porcelain plate.

The patient has kindly consented to be present tonight that you may see the result of this operation.

THE FARCE IN STERILIZATION.*

BY EDGAR O. KINSMAN, D. D. S., CAMBRIDGE, MASSACHUSETTS.

If the old adage be true that "cleanliness is next to Godliness," it is equally true that many dentists of the present day are very far away from Godliness.

That we believe in clean, bright, wholesome instruments and surroundings, both personal and in and about the operating-room, must be understood at the start.

That there is farce in sterilization we make as a declaration. Twenty-five years ago, in the surgical world, operations in hospitals were carried on with so little care as to sterilization, in comparison with today, that we wonder at the marvelous successes achieved. We saw many at that time. An attendant went around the operating table with an atomizer spraying the patient and the atmosphere generally with a solution of car-

*Read before the Vermont Dental Society, at Rutland, March 15, 1905.

bolie acid. The instruments were in a shallow pan of carbolic or corrosive sublimate solution. The surgeons in ordinary clothes. One noted surgeon used to operate in his Prince Albert coat, not even removing his shirt cuffs, while the general atmosphere of the room was, according to our present way of thinking, decidedly unsterilized. Now a well-appointed surgical-room is so built that there are no corners for accumulations of debris, the walls, ceilings and floors are easily made sterile. The surgeon goes through a long, careful preparation. He first scrubs his hands and arms up to the elbows in soap and water (usually green soap), cleaning his nails thoroughly at the same time. He then washes his hands and arms in a strong solution of permanganate of potash, then in a saturated solution of oxalic acid and finally in a solution of corrosive sublimate, usually about one two-thousandth. After this he puts on a sterilized gown, cap, gloves, and at times a mask over the face. The site of operation on the patient is scrubbed up in the same way as the surgeon's hands; everything that is used in the way of sheets, towels, sponges, pins, etc., and the instruments, thoroughly sterilized, spread on a table and covered with a sterile sheet.

Great care is taken that everything and everybody who may be present is in an aseptic condition. Thus, today, operations much more difficult are successfully performed. In dentistry we were taught many years ago, at the beginning of our career, to wash the instruments in warm water, keep them polished by the use of sand-paper or cloth strips, and that sufficed. Later the use of carbolic acid and alcohol were added to the list. We never heard or saw any infection in the office where we were located, observing in a fairly careful way the rules of cleanliness.

Do we find personally any less contamination now than during that time? No!

Today the office must have a sterilizer and we must go through a long and frequent process of cleansing of such nature that if followed out would keep one busy, with no time for anything else. The Arnold Sterilizer is one of the best and comparatively easy to operate. Water is poured into the pan or reservoir, when it passes, as needed, through small apertures into the quick-steaming base beneath, to which heat is applied. As

there is only a thin layer of water to boil at a time it is converted into steam very rapidly and rises through the funnel in the center to the sterilizing-chamber above. Here it accumulates under moderate pressure at a temperature of 212° F. The excess of steam escapes about the cover, becomes imprisoned under the hood and forms a steam jacket around the outside of the sterilizing-chamber. This is why an even temperature is maintained in the sterilizer. As the steam is forced down from above and meets the air, it condenses and drips back into the reservoir.

This or something similar for the instruments. We then must have sterilized air, napkins, rubber dam, thread, hands and everything every minute to be consistent. Just think what that means. Take the hands, for example; we cannot do as the surgeon does, and then put our hands in a person's mouth; neither is it possible to touch any of the appliances and have them stay sterile. We are obliged to make too frequent changes; the variety of our manipulations precludes the possibility. We hear of those who go into this matter to such an extent as to hire an assistant who does nothing but sterilize from minute to minute. It must be torture to both operator and patient(if he is aware of the terrible conditions about him) to live in such an atmosphere of dread and then think that after all the bugs may be still there, ready to do their deadly work.

Really, the deeper we go into such things the more ghastly is the vision, the more one suffers in both mind and body. There is as much difference in the opinions of dentists in regard to the needs or necessities of sterilization as there are differences of opinion in regard to the treatment of diseases or the manipulations upon the teeth. The sterilization of the surgeon and the sterilization of the dentist present two entirely different aspects or propositions.

The one deals with soft tissues almost entirely, those of the bones being reached through soft tissues, consequently he must use a great deal more care in his methods of preparation and operation.

It is the opposite with the dentist. He deals with teeth not covered with soft tissue, where he performs a greater part of his work, consequently he does not need to use the same care to get surgically-clean instruments. We do not believe it is

possible that, granting caries is of a germ origin, one can infect an adjacent tooth with a bur full of carious debris from another. The two cases where the extreme sterilization may be necessary are the treatment of putrescent pulps and pyorrhoea. There, coming in contact with soft tissues, greater care must be taken that surgical cleanliness prevail.

In view of such diversity of opinions, my view of the situation is that it is in many cases overdone; in a decidedly greater number of cases it is underdone.

We believe it is impossible to so prepare ourselves that we shall stay sterilized or that our surroundings will keep so, in the proper acceptance of the term.

Infection begins almost immediately. Even if someone is doing all this for us, we cannot be sure it is all right. The absurdity of the situation makes it a farce: the severity of one measure, the laxity of another, the forgetfulness, the thoughtlessness, the indifference displayed adds to its hypocrisy and causes us to be held in derision if we claim too great achievements. One thing we forget. Do we, like surgeons, sterilize the site of our operations? I'm afraid not very much.

Let us be sensible in this matter. There is no good reason why a dentist should not have a good supply of clean (in the proper sense of cleanliness) napkins, towels, and rubber dams. There is no good reason or excuse for his not cleaning his forceps, his excavators, scalers or files. There is nothing to prevent a dentist from washing his hands and cleaning his nails before putting them in a patient's mouth. All that is necessary for these results as to instruments is boiling water, to which soda-bicarbonate has been added, polishing as before stated with strips.

One should have also for washing and disinfecting a germicide ready for use, dipping the instruments in frequently as they are used. The number of substances that are less injurious to man than to micro-parasites is small, consequently cannot be handled with impunity. For each of these substances there is one proportion which will destroy the germs and another which will arrest their vegetation, but not destroy them. This last dose is the one with which we are generally obliged to content ourselves.

We must and can use a five per cent. (aqueous) solution of carbolic acid, which kills developed forms. A one-two-thousandth solution of corrosive sublimate is active and certain, but carbolic acid and also alcohol are neater and cleaner and answer the purpose.

Then last, but not least, the dentist personally must be clean and neat himself, and if his operating-room or corner is in the same condition, he has fulfilled his mission as much as is required of him for the protection of his patients and himself—nothing less, nothing more.

INCIDENTS IN THE PRACTICE OF DENTISTRY.*

BY DR. J. W. THOMPSON, FORT WAYNE, INDIANA.

When we speak of this subject, we are speaking of a subject as broad as the land and as sensitive as the chord that sounds the keynote to the actions of our chosen profession. This subject is so broad in territory, so diversified in manner and so controlled by conditions that it has been less mentioned than any important factor under our daily avocations.

As insignificant as this subject may present itself to some of you, it has its significance. Evidence of this fact is established during our every-day walks, both morally and physically.

Our associations and general conduct should and will control our minds as well as actions; in other words, we are what we make ourselves. Riches may not last—friends may pass away. Honor or misplaced confidence will die for lack of public opinion, but virtues live forever. Then why treat the subject of office experience coolly when such conditions as mentioned are only a few of those which control mankind, and make us what we are, or what we should not be.

Since the fundamental principles of office experience have had their origin in the inner man, comes the question, "What is office experience, or what should it be?" This is a good place to give a reason for selecting this subject. Those who follow in the discussion will have so much of their own ex-

*Read before the Indiana State Dental Society, June, 1905.

perience to relate that they will have no time to ask questions, or make any mention of what I have said, even if they have different ideas along this line of occurrences—which have, must, and will, come to all of us.

Intellect breeds ambition, ambition breeds prosperity. To live is to think; to think is to act; to act is to do. Living, thinking, and acting are the laws which control the destiny of mankind. These laws taken collectively not only influence, but direct and control all the animal kingdom.

The close observance of these laws is the cause of our profession standing so high in science and knowledge today, with its institutions of learning ranking second to none. These institutions have a standard or grade each equal to the other in regard to professional knowledge; recognized by the faculties of other institutions as the acme of dental education.

Their faculties consist of some of the brainiest men to be found in the country today. It is at these institutions, and by these men, that we are taught the principles and duties necessary to proceed in our profession.

Why some prosper and some utterly fail is not all due to the lack of professional training. Success is due to mind training, self-instruction and never-ceasing determination and perseverance.

It is through these channels that we receive instructions, and every-day perseverance added thereto, accompanied by conditions peculiar to each individual that makes our office experience what it is. To more thoroughly cover the ground we will divide our subject into periods.

First thought is to become located—try to secure some room, or rooms in a good district of the town or city in which you locate, neat in appearance, easy of access, good light and ventilation.

Then comes the real life in office experience, in getting and holding the people.

Second will be getting the patients. This is one of the problems in our profession that has no index to point out the places of information. No analysis of conduct or proceedings. No key to prove that we have covered all the ground thoroughly and reached that point of perfection which we would all love to attain.

My experience has been so diversified that I hardly know what particular efforts I can attribute my success to. I will say this, my efforts have not all been crowned with success. I, like some of you, too, perhaps, have sown on unfertile soil on more than one occasion, only to reap chagrin and disappointment, but the man who is true at heart, honest in his convictions, consistent in his efforts, must and will be rewarded by some of this world's products.

Securing patients and holding them is so different that we are compelled to exert new energy here, to make further research, to try to understand morally and physically the position, temperament and standing of the patient, so we may be better enabled to arrive at the truest conclusion possible to prove our ability to relieve suffering humanity and especially those appealing to us for assistance. I say this differs so much from obtaining patients, that we will speak of this as the third period. To begin with, my experience has been "speaking from a successful standpoint."

Prepare and equip yourselves as thoroughly as possible. Have your work, your regular every-day habits. Have yourself so thoroughly systematized that any deviation therefrom will so impress itself on your mind as to force you to stick to duty, thus duty will become a pleasure. Have your office hours regular and be at your place of business as promptly as if working for someone else on a salary.

Give your time to your patients at specified times as much as possible. What I mean by this is to set regular hours for your patients, and when the time arrives, be ready for each individual. If you can arrange to dismiss the former patient about the time appointed arrives, it will prove to the first as well as the last that your time is so occupied that any delay from appointed time will so disarrange you with your patients and your work that both will suffer, and again it will enable you to command better fees, which we should all try to secure.

If at any time some new patient should call or even a prospective or a shopper during your leisure hours, after a reasonable time of waiting, meet the party or parties, if shopping, in the most gentlemanly and mannerly way your disposition will suggest to you. Ever remembering to leave the impression that it is a pleasure to have them call for your advice or

services as the case may be, but with the decided understanding that they are not doing you the honor by seeking your professional services but it is their good fortune to be able to obtain the service of a man with the ability every dentist should have.

Hold the standing of your profession high among the masses of the people as well as among the scientific. When this has been accomplished you have not only succeeded in securing the party or parties, but you will be better enabled to hold them under your suggestions, I mean professionally.

There are many thoughts along this line that we will have to pass, but there is one which I would like to mention.

“Professional courtesy.” As long as the public is impressed with the idea that we do not respect the efforts and acts of our fellow practitioner, so long will that same public find fault with and condemn our professional actions. So let us cut down the tree of obstruction, dig up the root of contention, and pave the way of perseverance to that haven of brotherly love and contentment. This, and not until this is done, will help to give satisfaction to our patients, money in our pockets and peace to our souls.

An idea being one of the most important factors to be studied, we will speak of it as an individual thought. My experience along this line has presented so many ideas that we must be doubly careful lest we experiment with too many ideas on the same person at the same time. True enough it is well to establish some decided plan by which to work and let this plan be worked thoroughly.

Satisfy yourself that nothing more can be gained along this line. If this has been a failure, don't disarrange the unused furniture in your office and crouch back into your illy-kept laboratory and try to drown your troubles by the obnoxious smoke and smell of some half-smoked cigar that has been pushed down into the ash-tray for perhaps several days. No, do not do that. Begin to think for yourself. Pursue new ideas. I mean, have good thoughts, put your thoughts into action, let such actions be your every-day work and you will surely be able to succeed.

In conclusion, there is another thought we will consider. While not necessarily under the head of our subject, it might

have a tendency to influence some of our practice which will add some to the pleasure of our experience. It has been said and proven to be true, "United we stand, divided we fall." Then in union there must be strength. The stool supported by only two legs will topple and fall. Compared to mankind and especially to our profession, dentistry, the conclusion is that we need the support of each other, through the channels of societies or associations. If it were not so the local societies would not exist. It is at these weekly or monthly meetings that we taste the sweets of professional association and good-fellowship.

It is at these societies that we are better prepared to intelligently attend the associations, such as this is, always has been and always will be, if we attend them in the same spirit and with the pure motives in view that have been set forth by the older members of this association. If it were not good to be present at and affiliate with the members of these meetings, some of the wiser ones would not be the first faces to be seen in the assembly rooms. Yea, they are the first ones to greet us with their pleasant smiles and hearty handshakes, which within itself is enough to overcome that feeling of timidity and brighten that forsaken feeling—meaning to each and every one a feeling of welcome. While we can have the pleasure of these meetings and while we can have the pleasure of these affiliations we can go back to our homes, back to our everyday practice, with its experience peculiar to itself but influenced some by ourselves. If we allow our experience alone to control us we might be influenced for good or again to go from bad to worse. Let us then be as philosophical as possible, let our experience be pleasant or unpleasant, apparently for our good or bad, let us try to do our best, be gentle and kind, be courteous especially toward a brother practitioner and be ethical.

DISCUSSION.

DR. M. H. CHAPPELL, KNIGHTSTOWN, IND.—"Incidents in the practice of dentistry," may be many, and varied owing to the nature of the practice of the individual dentist.

Some dentists (?) may be advertisers and guarantee *fits*; with his artificial teeth, some of his patients *take on fits*, and he proceeds to give the aforesaid dentist *fits* before he gets a fit, and likely he has to employ some other dentist before he gets a useful set of artificial teeth.

Also, some dentists make a *specialty* of extracting teeth without pain, or at least they so advertise, and the patient and the public realizes his specialty by the yell of the patient or patients.

Other dentists contend they *mummify* all exposed nerves or aching teeth that come to them and that they universally have the best of success, and with "sheeny" suavity they persuade the patient that they are having the latest and best of service in *up-to-date* dentistry. The fee is paid and the patient retires. Perchance, in a few days, a storm-cloud appears on the horizon of his dental discontent, and the thunders roll, and the flashes of lightning strike that particular mummified tooth, he seeks his dentist and finds on the door, "out of town," then disappointment and pain begets anger and rage, and the tooth continues with its "heart throbs" and the patient takes a stroll for the *next best(?) dentist*. He finds him in his office. He is busy, there may not be any one to answer calls in the reception room, and the busy dentist observes that his caller manifests the usual signal of distress, and the uneasy actions of the dentist causes his patient to yield his place and time for the benefit of the sufferer.

Poor suffering humanity cries out in agonizing tones that Doctor So-So mummified that particular tooth, and it is now an inch longer than any of the rest of them, and as loose as a reed in a swamp, and the blamed thing must come out. "Will you take gas or shall I inject an obtunder in the gums?" "Nah," says the patient. "I am mad enough at the thing to have every tooth in my head out." The thoughtful and conscientious sympathetic dentist places a pad of cocaine mixture around the gum with pressure and then extracts the tooth. The patient declares that there was but little or no pain. An abscess sack on the end of the root told the *post-mortem* story. Then follows a volume of mummifying oratory until the mummifier is completely mummified and buried, so far as that patient is concerned. Then a mutual admiration society is started and that particular dentist becomes a past-master in the society. That particular patient does all the advertising freely thereafter for that particular dentist and he goes ahead in the even tenure of his way, making no disagreeable reflections against the much-complained-of dentist, who is unaware of the failure of his mummified tooth.

Then comes the "shopper" looking more for trouble than for satisfaction. You are busy with dates ahead and you are striving to get your dates filled before you can get off for your dental association. The caller wants to know your prices for filling teeth, gold crowns, or sets of artificial teeth, or bridge-work, and what time do you give on payments. Now you are up against a Jap proposition—hard to down.

You ask, "Have you any teeth aching or requiring filling?"

The answer is, "Yes, I have some teeth out and some to fill, and possibly some bridge work to be done."

"When do you want to have it done?"

"I don't know yet, I thought I would look around and see where I could strike the best bargain."

"Are you looking to find how cheap you can get it done, or do you want the best there is to be had?"

"Certainly; I want the best for the money if it don't cost too much I was going to say, Mrs. So-and-So had Doctor So-and-So make her some crowns and bridge work, and the price was very low, everybody said, but if you will do my work as cheap as Doctor So-and-So will do it, I would rather you would do the job if we can agree on the payments."

Those "shoppers" we see at every auction sale, every rummage sale and bargain counter on bargain days, every free entertainment, every religious revival, and every funeral, even if it be a stranger to them.

How to fire them out, or to secure their patronage and maintain your own self-respect, and not lower your standard of fees or excellence of service, and increase your bank account, will test your diplomatic skill, and at the same time build up your practice.

Office experience is the sum of the sphere of the dentist. Some succeed, others fail even if they follow the same mode of practice.

Tact and snap are partners with dig and dig, close observation will show that they succeed.

A dentist may and should engage at times and seasonable hours, in addition to his professional duties to his patients, in the study and experimentation in collateral sciences and arts, as well as in social, benevolent, or commercial interests. It would be impossible to make a schedule of rules to control the incidents in the practice of dentistry, or to prescribe or proscribe the actions, tastes or dictum of any practitioner. The ability, the environments of the individual will determine the extent of his labors, or the success or failure of his efforts.

It should not be expected that every dentist should be a "Chester-field," a Harris, a McQuillen, a Watt or a Taft, or that he should possess every appliance or instrument that is offered for sale, or that he should experiment with every empirical fad offered in the treatment of pathological conditions or to make his or her office a museum of dental curios, as some of us have done.

When I began practice forty-five years ago, my instruments and appliances were limited, yet before two years had passed I came to the conclusion that to be an up-to-date dentist I must have pearl-handled instruments, and some other appliances that the dealer *said* they are all getting in order to be up to the times. I have them yet and they never were much good, only partially satisfied my professional vanity, and a profit to the said dealer.

In 1863, (forty years ago), I located my office in the rooms I have continuously occupied ever since, with a number of refurnishings, and what ever success of failures I have made as a practitioner, I trust that the one who writes my obituary will be charitable to my memory as I have done the best I could under the circumstances, and be generous to my competitors.

A dental office should not only be a reception-room, and operating-room and laboratory, but it should be the dentist's study or library, and experimental station, and business office.

Every dentist should be a business man, (or woman), and strive to learn the various phases of business principles, and endeavor to conduct

his affairs so as to be recognized as a business man. I do not mean that he shall drop into the ways of the skin-flint, the half-cent nickel getter, or tight-wad, and do his service so scantily as to fail in doing the required service for his patients, and prove a failure as a professional man. Neither would I suggest that he should be a spendthrift, luxury fiend, or a sport.

"Commercialism" appears to be a ruling power in our day and has invaded every avenue of business, every profession, trade and calling, and we see it in dentistry.

And now what is the duty of the dentist? It is plain that he should look out for his interests the same as the various unions in every known line of industry, save possibly the practice of dentistry. Organize, organize as we did twenty-one years ago when we secured the first dental law in our State. The dental dealers of the United States, the dental colleges, all have organizations and we should learn lessons of wisdom from the results of their trade associations, which would be of untold benefit to us as practitioners.

In place of eating each other up with non-ethical methods, and failures in modes of practice, we should organize to protect the highest interest of the individual and to maintain the standard of professional excellence.

I am firmly of the opinion, and have been for years, that our colleges should have chairs of "dental jurisprudence," and "professional ethics." Under dental jurisprudence a condensed curriculum of a business college should be taught. And under professional ethics, each student, or alumnus should be impressed with a profound respect and gratitude for the "alma mater," and class associates, and all professional co-workers with a conscientious observance of all minor, as well as major virtues—promptness, politeness, truthfulness, charity and self-denial, and all things which go to make up a true man or woman, should be thoroughly inculcated. If this shall have been done, then the ethical horizon will have a clear professional sun to shed its brilliant rays over an appreciative field of success.

I know of no alumni association which inculcates non-ethical practices, but they all insist on a strict ethical standard. As we insist on an ethical membership in this association, our meetings should close the door against all persons unless they come in by recommendation of the board of censors, or the executive committee.

The essayist is to be complimented for the high ethical standard he maintains in his paper.

To make this principle more effective, our laws should be amended, requiring every registered dentist to belong to a county, district, or State association and be subject to the rules of such association, and with provisions for the rigid enforcement of the law.

In maintaining the standard of professional ethics, the individual should have and enjoy the natural right to his inventions and improvements that he or she may invent or discover. A proper patenting and introducing to the trade or to the profession of such articles does not

come within the scope of professional ethics and should be encouraged in clinical and experimental commercial lines.

In viewing this subject of the essayist, many psychological questions cross our path. The professional attainments of the dentist, his duties and responsibilities to his patient (the public), and the appreciation or lack of appreciation of your ability, or the relief they enjoy, his relation to his co-worker in maintaining a proper dignity (not egotism) and self-respect, and his duty to himself in making money and saving it sufficient to provide for the support and education of his family, and something to live on when disabled or by the infirmities of age, or when the children marry. The question over all of these reflections, what shall we do to protect our interests.

Self-preservation is one of the first laws of nature—purely an instinct, and there is no denying but what we all are in the race for the "survival of the fittest." And in proportion as we love our families, and the brethren, and as we have professional pride and self-respect, we approach every proposition with a reason for our actions, that our instinct may have an intelligent solution.

SOMNOFORM.*

BY DR. B. H. COOPER, BOSTON, MASSACHUSETTS.

Before I venture to describe the use of somnoform, it may be well to reconsider briefly the history and general characteristics of the drug itself, as I find that there are many practitioners who have heard of it in a general way, but who are pleased to wait until it has been given an American baptism of criticism and trial before they venture to investigate it on their own account.

Somnoform was first brought to the notice of the profession by Dr. G. Rolland, Professor of Anaesthetics and Dean of the Dental School and Hospital of Bordeaux, France, at the Congress of French Association for the Advancement of Science, in 1901.

Since then, its use has become general in England, France and Spain, where many of the larger hospitals are using it with success. There have now been in the neighborhood of two hundred thousand administrations of the gas, and not one death caused by its use.

*Read before the Vermont State Dental Society, March, 1905.

Somnoform is simply a compound of three well-known anaesthetics, but a compound in which the undesirable features of each of its components have been eliminated or modified by the others. It is a mixture consisting of

Ethyl Chloride	60 parts
Methyl Chloride	35 parts
Ethyl Bromide	5 parts

and those quantities were determined after a series of exhaustive experiments and patient, profound research.

During his studies, Doctor Rolland formulated three propositions:

“First: To produce anaesthesia it is necessary that the tension of the anaesthetic gas be superior to that of oxygen, so that it may, to a certain extent, take the place of the latter in the pulmonary alveoli.

“Second:.. The tension of the gas being proportionate to its volatility, the more volatile the gas is the easier can it be made to take the place of oxygen.

Third: The ideal anaesthetic, if such be attainable, would be the one behaving in its conditions of entry, of sojourn, and of exit from the body, as does oxygen.

“Therefore, an anaesthetic capable of being absorbed practically in the same manner as oxygen, should produce its effect in about fifteen seconds. Then if the administration be discontinued, the anaesthetic should be eliminated in proportion, as the corpuseles come again in contact with the oxygen.”

Somnoform is thus absorbed and eliminated, but its persistent analgesic effects result from a powerful impression made upon the nervous elements, as has been shown by microscopical study of the cerebral centers which show the modifications produced on the neuron.

Doctor Rolland, by his experiments, has shown that somnoform has an elective action on the cells of purkinje, thus suppressing sensitivity to pain and temperature, and when there is saturation or excess of the anesthesia, the pyramidal cells are impressed, determining loss of consciousness.

The first noticeable feature in the administration of somnoform is the rapidity of its action: from fifteen to thirty seconds being sufficient to produce complete anesthesia, lasting from one minute to (in some cases) two and a half minutes.

One case I had where only one inhalation was taken, and the subject remained perfectly unconscious for fully three minutes, and awoke to tell us of pleasant sensations experienced during his slumber.

Four deep, full inhalations are all that are required in most cases, but as many patients fail to breathe deeply after the first effects of the gas are experienced, the mask must be kept over the face slightly longer.

But in every case it is safe to say that anesthesia will be produced in one-half the time that would be required with nitrous oxide.

The second remarkable feature is the total absence of cyanosis. I have never seen a case where the slightest evidence of suffocation was manifest. Of course, suffocation could be produced by keeping the mask over the face long enough, as the gas contains no available oxygen, and the patient receives only what air has been forced into the bag by the first exhalation after the mask was applied. But full anesthesia has been produced minutes before any danger from this source would be encountered.

The inhaler is so constructed, however, that it may be used for prolonged anesthesia by simply opening the air valve from time to time, thus replenishing the supply of air in the bag, without removing the mask from the face of the patient.

The lack of any change of color will be appreciated by dentists who have been called upon to administer nitrous oxide to patients who were accompanied by nervous and over-sympathetic friends, which friends have become so exercised over the post-mortem appearance of the sufferer that the whole acquaintance list of both were speedily informed of the horrors of gas, or warned against ever submitting to such death-like conditions.

With somnoform, this difficulty is entirely obliterated. The color of the lips and cheeks remain absolutely normal.

In anaemic patients the color will be slightly deepened to a healthy pink shade, but aside from this no change takes place. Another favorable feature is the absence of struggling or pugnacious manifestations on the part of the subject. I have never had a patient raise his hands in delirious attempt to remove the mask or to grasp the hands of the operator.

The odor of the gas is sweet and pleasant, with no caustic action upon the fauces or larynx, and there is, therefore, no choking, nor any sensations of suffocation, as with nitrous oxide.

Occasionally with the first breath, the patient involuntarily hesitates, as the odor being quite marked and foreign to the experience, causes a momentary lapse of will-power, but that first breath has produced such a pleasing effect that the breathing is resumed without fear or dread, and two or three more inspirations will have placed the subject in the land of happy dreams.

The anesthetic sleep is influenced by the mental impression existing at the moment consciousness fades away. Let the operator prepare the mind of the subject by suggesting some pleasant condition, such as sound of sweet music, or floating on tossing ocean billows, and the patient's dream will be characterized by similar sensations.

As regards the dangers of somnoform: The most significant fact in answer to this question is that with over two hundred thousand administrations of the gas, no death has been caused by its use.

Ether itself produces a mortality ratio of one to sixteen thousand six hundred and seventy-seven, while chloroform produces one to three thousand seven hundred and forty-nine administrations.

No person can say, of course, that no death will be caused by it, but after five years of severe tests and extended use, it emerges with a clean and innocent record, which should satisfy even the most discriminating and careful operators, as to its safety.

There are conditions which forbid the administration of any and all anaesthetics, and in such cases somnoform should be regarded inapplicable. But unless the patient is known to be suffering from valvular lesions or fatty degeneration of the heart, tumor of the brain, oedema of the glottis or advanced alcoholism, no dangerous symptoms need be feared.

In experimental cases, where somnoform has been administered to the lower animals for the purpose of producing death, it was found that the respiration ceased in some cases, six minutes before the heart stopped beating, showing that in a

practical case, the surgeon would have ample time to resuscitate the patient in case the respiration ceased entirely.

I have given the gas in several cases where the patient claimed to have some trouble with the heart, but as the symptoms were not indicative of *serious* complications, I proceeded without any but satisfactory results. Nervous patients, and those whose dread of the dental chair have kept them long in a state of apprehension, are not so quickly anesthetized as those of sanguine temperament, but they all succumb, and with less trouble than would have been experienced with gas.

Some cases of nausea have been reported, but as they came from sources where the anesthetic was being used for the first time, undoubtedly more of the agent was given than was necessary. However, such cases are uncommon, and more familiarity with the drug will probably eliminate such experiences.

The indications of complete anesthesia are practically the same as with nitrous oxide. The absence of corneal reflex, together with relaxation of the muscles, and deep, quiet breathing, are the chief indications, and these are usually attained with from two to seven full inspirations.

If the patient hesitates in his breathing, as many will always do during the administration of any kind of anesthetic a firm pressure on the chest, or a sharply-spoken command will generally suffice to induce resumption.

I believe that most operators, when administering gas, are in the habit of allowing one breath of fresh air for every six or seven of the gas. With somnoform, this is not to be done. The pure article should be given until sleep is produced, unless in some special case an extraordinary tolerance of the drug is encountered. Judgment in such cases should govern, and air be admitted by simply opening the valve, without removing the mask from the face.

With regard to the length of time a person may be kept under the influence of somnoform, I will quote from Docto Rolland, who speaks of a case of gangrene of the cheek, which was operated on at the Bordeaux Dental School. He says:

"I put that person to sleep about fifteen times; at one sitting she took a bottle and a half of somnoform. I manage to keep her asleep for twenty minutes. I thought, therefore

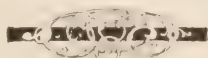
that I could use the anesthetic for longer operations. I began the experiments on a Guinea pig, which I kept asleep for an hour, and then I tried it on a series of animals for periods of three and four days. A cat which had had its hips broken by a dog I anesthetized for eight hours, then killed it purposely. I have given it for surgeons performing nephrectomy, and operations on the interior of the bladder. I think there need be no anxiety as to its effects."

At a dental meeting a few days since, I anesthetized seven dentists, one after another, immediately as they arose from the banquet table, and as I presume all those stomachs were comfortably well filled, it is quite remarkable that no nausea was produced by the gas. At another meeting, one gentleman was fully anesthetized three times, at his own request, and experienced no unpleasant effects.

I have given it four times within half an hour to one patient, where almost a full upper and lower set of teeth and roots were extracted, without a sign of nausea or headache resulting.

The inventor claims that nausea is produced in only one per cent. of his cases. Its action on the heart is that of a mild stimulant. The pulse quickens a trifle at first and then falls to normal. The respirations are deep, and in most cases quiet and regular. A quiet snoring is one of the indications of complete anesthesia. Stertorous breathing is seldom or never produced, and jactitation of the limbs is an uncommon occurrence.

It is not claimed that somnoform is the *ideal* anesthetic, for if such a thing were possible, it would need to possess as many different properties as there are different ideas concerning what an ideal anesthetic should be. But it is claimed that it is the safest, cheapest and most convenient, and in every way the most satisfactory anesthetic agent yet produced, and we agree with Doctor Beaudry-Mills, who says, "Get used to it as quickly as you can."



PRESIDENT'S ADDRESS.*

BY J. F. WERNER, D. D. S., ELKHART, INDIANA.

My first duty at this time is to express to you my sincere thanks for the honor you have conferred upon me.

Believing, as you have, that the duties of the office bestowed upon me would not be misplaced, I have with this confidence endeavored to justly perform the same.

The duties of an officer of this association, or one of any other society, who has the welfare of his fellow practitioners at heart, is one of much importance, but time will not permit me to enter into detail of the many things that could be said regarding the welfare of this society.

Permit me to say that you, as well as myself, desire to express our gratitude to the members of our committees and to those who have so diligently applied themselves to make this meeting a most profitable one.

We have come here today, not perhaps like in former times to keep from the world secrets of our art, but to mingle together, exchanging and communicating our views, associating in a friendly spirit whereby we may be able to benefit ourselves, advance the interests of the association and improve the standard of our profession.

Today marks the forty-seventh convention of this association and well may we feel proud of the progress made. While our association may not be as large as in other States, due possibly to the fact that in our domain we have none of the larger cities to draw from and where possibly our advantages in clinical instruction is not so great, yet I am free to say that numbers does not materially effect the quality of our membership, and in looking over the list of names who honor our society we find none who have not shown integrity and skill in a manner creditable to the society.

Such should be our aim in the work we have to do and I find, after looking over a vast amount of literature, that the sentiment expressed in our old Constitution relative to the objects of the society, should be carried out and become a part or record in our new constitution, which you will be asked to adopt.

*Read before the Indiana State Dental Society, June, 1905.

Permit me to repeat, lest some may not be familiar with its reading, that

"The object of this organization shall be to contribute to the elevation of the dental profession by encouraging a free and liberal exchange of opinions on methods of practice and the literary discussion of subjects relative to dentistry.

"To promote the standard of dental education; to promote the usefulness, honor and interests of its members, and to enlighten and direct public opinion in regard to the duties, responsibilities and requirements of the dental profession."

In these few lines should be found expression of thought sufficient to spur you on to the duties now before you. Not alone the duties you owe to the society, but to the public as well as to yourself.

The younger members of our profession should attend society meetings and should endeavor to enlarge its membership, for by such increased membership and proper assimilation we only add to the influence of our cause.

The larger cities should have societies, and they, together with the smaller cities, should form their country or district societies. By this means of association you will find that a more complete understanding may be had, that you will learn to know each other better and by the proper infusion of individual effort do away with the selfishness that so often pervades the minds of neighboring practitioners; take advantage of these things superior to yours and let them act as an incentive to inspire you to force your efforts to acquire the same.

Therefore I trust that this society at this time may see fit to establish a committee on organization whose duty it shall be to see that the various sections of the State are duly organized.

It reaches those districts where, possibly, dentists are unable to attend our State meetings and by their association blend the way to increase our State membership, and create harmony and good-fellowship in the district in which they live.

To elevate the principles which we advocate, we must put ourselves forward as examples, endeavoring at all times to cultivate these rules of practice so beneficial to our success.

The work of our committee is difficult and it has been their aim to place upon the program practical demonstrations, yet

it would have been an easier task if the members would express their desires and offer suggestions pertaining to particular cases which they have in mind.

Our clinics today are becoming the most appreciative part of our program and, therefore, stress has been made in that direction.

Our dental exhibits, which also give the dentist an idea of the many improvements in dentistry, should also be a source of practical study and receive their share of attention.

The time is coming, and I venture to say that the scope of dentistry is becoming so large and the improvements so rapid that in order for the mind to conceive of the improvements and the thorough adaptation to all the principles of practice that specialism will be the result. Therefore, as stated, while the field of improvement is so large, it seems almost incredible that any practitioner could absent himself from such a meeting.

After passing a year of devotion to your office work, working out problems of your own thought, that the association and knowledge gained through your affiliation with this society would prove a greater source of recreation to your mind and a satisfaction to know that your opinions favorably compare with those of others.

It is commercialism in thought, changing and exchanging opinions, giving and receiving suggestions.

A great deal has been said on the subject of commercialism in dentistry. There is not enough, however, of the practical and scientific element so essentially necessary and productive of good results. Our colleges have lectures on these subjects and yet a great deal more could be said to educate the student to guide him on the path which brings him to a level of professional efficiency.

We all, to a greater or less degree, practice our profession for the returns which it brings financially. Bearing in mind, however, that whatever you receive for your labor is simply the value you put upon it yourself, thinking that what you receive should not alone compensate you but to give to your patients that class of work which the average intelligence could afford.

It should not be the price or commercial value you place

upon your operation that makes you superior, but the results you obtain, and that confidence and influence which you have acquired can only be obtained through your Alma Mater, your attention to your society duties, your own personal observation and your good, honest work.

There are many things to be said and done relative to the welfare of any profession to bring it to a standard, but it is still more difficult to define that standard.

The journals of today are being printed by our dental supply houses, and I see no good reason why they should not be, but an American dental journal, conducted by the profession-at-large would be far more elevating and should merit the support which it deserves.

Many improvements could be made by our legislative bodies, and we owe thanks to our legislative committee for the active part taken in obtaining additional improvement to our dental laws.

While they are not altogether what we hope for, yet I believe by earnest effort on the part of every member of this society, we will in time receive due consideration.

There is another problem which, in my mind, should improve the conditions of dentistry and that is the recognition of diplomas or certificates of one State or college by another.

The dental graduate should be protected and when once graduated should be entitled to practice in any State of the Union so long as his college is recognized by the association of dental faculties, whose power it should be to determine the eligibility and curriculum of dental education.

At our last State meeting mention was made of giving medals. I believe the subject should be discouraged.

This society, for the past few years, has practically done away with a publication committee, but I believe a committee should be appointed and become a part of our new Constitution.

I trust that all will enjoy the hospitality tendered at this time; that the younger members present will feel free to take part in all the discussions and that the older members see to it that they are made acquainted and feel at home.

Therefore, I extend to you all a hearty welcome and an earnest desire that you co-operate in our work.

PRESIDENT'S ADDRESS.*

BY DR. W. R. SMITH, LINCOLN, NEBRASKA.

Having reached another mile-stone in the history of our society, we find ourselves assembled here to celebrate the twenty-ninth anniversary.

Permit me at this time to express my appreciation of the honor conferred upon me one year ago, when you called me to the office of president of the society. It gives me great pleasure, as such, to welcome you, one and all, and I trust that this may be a very pleasant and profitable session; that we may gather some ideas which will prove helpful to us in our future work.

The executive committee have labored to make this the most profitable meeting in the history of our society, and I hope their efforts will be fully realized and appreciated by all. It is no small task to arrange a program such as we have before us today, and I wish to congratulate the executive committee for the grand work they have accomplished. It means work, and lots of it, from the day of the meeting of the executive committee till the time the programs are in the hands of the members. Upon this committee depends the success or failure of the meetings. We should not, however, lose sight of the fact that much depends upon us; we all have a part to perform and it is our duty to respond to the call of this committee. Just here I wish to say a few words regarding the office of corresponding secretary. I believe the majority of us little realize the duties devolving upon that officer, and how much we can do to assist him in the discharge of his duties. After the meeting of the executive committee nearly the whole work of the program falls upon him, and he has a great deal of correspondence to look after before same is complete.

Since Doctor Hatfield started with the work of the program he has written, in round numbers, five hundred letters. Striking an average of fifteen minutes to the letter, and figuring eight hours a day he has given to this society, about thirteen days' labor. How many of us would think we could afford to do this? Time is money with us, and so it is with him, yet he has given us this much of his time that we may enjoy this meeting. Many of these letters were to you, requesting a

*Read before the Nebraska State Dental Society, May, 1905.

paper or a clinic. Perhaps you laid the letter away saying you would answer it in a day or so; perhaps you forgot it altogether. Be that as it may, in a week or so you received another letter, which you treated in the same manner; another week, and you received the third. Do you not see how much time and trouble you could have saved him had you been prompt in answering his first letter? I hope you may realize what this means to the society, and hereafter when you receive a communication from the corresponding secretary of this society, that you will give it your immediate attention, even though obliged to leave a patient while you attend to the same. You have done very well this time and given us an excellent program, for which I wish to thank all who have so generously contributed.

It is gratifying, indeed, to note the harmony existing in our society today, and the individual effort put forth for its welfare. We have one of the best societies in the States, and it is due to the brotherly feeling existing among its members. There is no room for jealousy or discord; harmony is the word, and may it ever prevail. We have a good thing, and should not be content until we convince others of this fact, and lead them into the fold. Our membership is small compared with the number of dentists in the State, and we should use every means possible to bring others into the society. We cannot hope to get them unless we are able to convince them that there is something in it; like our neighbors in Missouri, we must "show them" that there are advantages to be derived from society work; that it is a duty they owe to their patients, as well as themselves; that it will do them good, and they will be a help to the society. We should make a special effort to get the young men, for upon them depends the future of our society.

You will notice in the program a committee called membership committee. I hope the members of this committee will organize and get busy at once, as there is work for them during this session, and they will have discharged their duties well when every one present, who is not a member of our society, have enrolled their names upon our list. I would suggest that this committee be continued, that they serve as do the board of censors, one for three years, one for two years, one for one

year; then each year thereafter we elect, or the president appoint one new member to serve three years; that they adopt some plan whereby they may solicit those whom we should have in our society. We need at least three "missionaries" in our society to reach out after the wayward ones. There are many good men in the State who should be in this society, and I think would be, if we invite them. So I think this committee can do much in this direction.

As a profession we have great reason for congratulation. We have one of the best dental States in the Union; one of the best State societies; two good dental colleges, well equipped for teaching all branches, both technic and practical, and in a few days we will have one of the most rigid dental laws upon the statute books of any State. Just here I wish to say a word about this law. Some of you will remember that last year Doctor Shannon, in his address, recommended some changes in our law and gave reasons why these changes were needed. For some reason his paper was not discussed when read and was overlooked altogether. No action was taken and nothing was done until October last, when at a meeting of the Odontographic Society of Lincoln, the subject was mentioned and steps were taken to bring some action. The secretary was instructed to call a meeting of representatives from the different societies and colleges within the State. A meeting was held October 24th at Doctor Ladd's office in Lincoln. A legislative committee was organized consisting of the following men:

Dr. W. N. Dorward, Chairman. State Board of Dental Secretaries; Dr. H. A. Shannon, Nebraska State Dental Society; Dr. W. T. Humphrey, Lincoln Dental College; Dr. H. T. King, Omaha Dental College; Dr. C. F. Ladd, Odontographic Society, Lincoln; Dr. P. T. Barber, Tri-City Dental Society, Omaha; Dr. M. E. Vance, Secretary. Doctor Vance was not a representative, but being at that time secretary of the Odontographic Society, was chairman until the organization of the committee, when he was unanimously requested to act as secretary for the committee. This he did to the satisfaction of all concerned. There is always some expense connected with a move of this kind and to meet this, each organization represented pledged amounts as follows: Nebraska State Society, \$50.00; local societies, each \$10.00; Dental Colleges, each \$10.00, making in

all \$100.00. A bill was drafted and later passed upon by a competent attorney, after which it was introduced in the legislature by A. E. Bartoo, M. D., and passed that body with only only four votes against it, went to the Senate, where it was championed by W. R. Haller, and passed that body without a single vote against it; went to the Governor, and was signed February 28th, and will become a law ninety days from that date. A great deal of credit is due this committee for their untiring efforts. They were obliged to forfeit time that belonged to their business to guard this bill in keeping it from the "pigeon-holes," the burying-ground of so many worthy bills that have met their doom and lie buried there today.

This only demonstrates what can be done when we work in harmony, and organize for a specific purpose. This committee, with the assistance of the profession-at-large in our State, has accomplished good work and should be highly commended for their efforts. We now have a law second to none and Nebraska is placed upon an equal footing with her sister States

Since our last session, that Silent Messenger has stalked into our midst and removed one of our number, Dr. W. E. Jack, of Lincoln. Although a young man, the summons came, he crossed the river into that land from whence no traveler returns. We know not what the future has in store for us, nor the hour when some of us may be called to pass into the Great Beyond. It behooves us, therefore, to be ready, and when the time comes we may say as did our martyred President, William McKinley, "not my will, but Thine, be done."

COMBINATION FILLINGS.*

CLYDE DAVIS, B. S., M. D., D. D. S., LINCOLN, NEBRASKA.

The avalanche which has just passed, incident to the revision of the methods of inserting porcelain inlays, has swept a large portion of the dental profession off their feet, and we are just recovering sufficiently in the valley below, to poke our heads above our icy surroundings, and ask ourselves and our companions, if there is yet anything in dentistry worth consideration other than porcelain.

*Read before the Nebraska State Dental Society, May, 1905.

I do not want to be understood as antagonizing the use of porcelain inlays, for they are, when rightly used, a thing of beauty and a joy, for at least quite a while and a dentist who has not incorporated these in his every-day practice has not rounded out his profession to its full measure of usefulness.

This passing whirlwind which has filled our eyes with pulverized porcelain, like many other periods of searching investigation along any one particular line, has brought to mind some facts developed collaterally with the main subject under consideration.

All inlays of whatever material are only a combination of filling materials so used as to take advantage of the good qualities of each material used and to minimize to the fullest extent the weak properties.

Since dentistry was raised to the dignity of a science there has been a diligent and searching investigation to discover, or produce a filling material possessing all of the virtues of every filling material combined in one, none of their objectionable features, and should such material ever be discovered, all materials now used with their varied methods of manipulation would, in a season's time, become obsolete, to be remembered only as a nightmare, and future generations would look upon our struggling efforts with pity and speak of the "primitive days" when referring to porcelain, gold, amalgam, cement, etc.

But we are reveling in the dreams of a dental millennium, forgetful that we are still in the land of the living, face to face with disintegrating teeth and objectionable filling materials.

I believe that when we do find the much sought for "perfect filling," it will be in the combination filling of which the inlay and particularly the porcelain inlay is a good example.

We have but two examples of the single substance used as a filling material, pure gold and pure tin, and these in many, if not all cases, can be materially improved when combined with other substances.

However, since we have such varied conditions to meet in different mouths, and even in the same mouth as well as different positions in a given tooth, it is doubtful if the best re-

sults can ever be obtained by the use of a single substance or a **set combination of substances as a universal filling.**

Porcelain alone as a filling is worthless, but combined with cement in selected places, where its virtues may shine and its weaknesses are protected, it is as a combination filling, without a rival.

Pure gold alone as a filling is good, but much better when one of the constituents of a combination filling, used with cement as an inlay or fused gold alloy, or built into a layer of soft cement, first using soft gold, then cohesive foil, and where subject to abrasion, finishing with gold platinum foil. **Here you have the principle of the inlay.**

It is a combination filling magnifying the good qualities and minimizing the faults of each of the ingredients. The cement is adhesive, the soft gold gives close adaption to cavity walls and margins, the cohesive gold resists lateral stress in contour and the alloy of gold and platinum resists abrasion. Your experience will readily suggest places where such a combination will give better results than any one of the substances alone.

We have demonstrated in many an old filling that gingival margins resist decay much better when covered with pure tin than with pure gold or amalgam.

The tin when used alone does not satisfactorily resist the stress of mastication, hence we have the suggestion of the combination filling as covering the base of the cavity and particularly the gingival margin with pure crystal tin, finishing with the different golds, as above, or even amalgam as the case demands.

The amalgam filling is in itself a combination filling and its better combinations have stood the test of time, loved by some, used by many, and respected by all.

However, if it is further combined with pure tin, as mentioned above or with cement, bring into it the principle of the inlay, its values are materially enhanced.

The combination with cement prevents discoloration of tooth substance and adds adhesion to the usual mechanical retention, **which are points not to be ignored.**

In the final insertion of a combination filling or inlay, wherein cement is one of its constituents, we should remember

some facts regarding cement which the use of the porcelain inlay has forced to our notice.

First: The fact that the less the quality of cement and the greater the pressure under which it crystallizes, the stronger its adhesion.

Second: That cement expands when so-called "setting" takes place, hence the filling must be permanently fixed and unyielding before this crystallization of the cement begins.

Therefore, when combined with amalgam, it should be an exceedingly slow setting cement, topped with a very quick-setting amalgam, that the amalgam may be one solid, unyielding mass held in the cavity by the usual mechanical retention.

The expansion of the cement when it starts to set, will produce pressure in proportion to its expansion, a condition to be sought. The small quantity of cement, another condition conducive to great adhesion, should be obtained by burnishing the first portion of amalgam or gold as close to cavity walls as possible, giving the appearance of forcing all the cement from the cavity. Again we have the inlay. Again we have the combination filling.

We are still looking for the perfect filling material. Are we not to find this in a combination? Or better, are we not to find the perfect filling materials in a study of the possible combinations of the various materials at hand so assembled as to take advantage of their good qualities and minimizing their faults?

DISCUSSION.

DOCTOR HIPPLE: In regard to the use of porcelain as part of combination fillings I cannot speak about, because I wasn't here when the paper was read. But as far as the principle has been enunciated by him, I believe he is correct. I believe any method that seals up hermetically makes a better filling than any method which does not. In the use of gold or metallic filling alone, it is a question whether that will, in most cases, seal up all those openings. We simply close the cavity mechanically. By means of cement we do absolutely seal up those openings, and owing to that fact, we have better success with these kind of fillings than other fillings made from one filling material alone. If we could get a cement which is absolutely insoluble and make it the color of the teeth, I believe it would be the ideal filling. In the absence of that we have to modify our practice by getting the good qualities of cement and bring-

ing them into use, and at the same time all the good qualities of other materials. I think there is food for much thought in what he has said, and I believe we can all improve our practice more or less by using combination fillings at times.

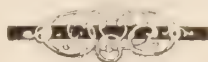
DOCTOR WORK: I haven't much to say on this subject. I think his paper was very timely, but he did not say anything we could not sanction. The first thing that ever brought this combination filling to my mind was when I started out in a little town.

One afternoon I was making two gold fillings. They were the same old fillings we have all seen made. In burnishing one of these fillings, as we did in those days, I burnished one of them out. I thought that wouldn't do. I had heard about inlays, and I said, I will cement that back in. It was not specially made for inlay work, but that filling was cemented in place and that was in 1894, along in the month of June, because I had kept a record of all the work I ever done and had had cause to refer to it several times. The other filling that stayed in and resisted all the power I used in burnishing is there yet, up to three weeks ago. The one tooth is black as can be around it, but the one I put in and took out, is in there yet and doing good service. They are both marred on the surface showing a good deal of use. I think this difference in conditions must be on account of the cement in sealing the cavity margins. I don't put in my fillings that way now. But I believe that a great many of these I have made in the last few years and will make in the years to come, will be a great deal better if I do burnish them out and have to reset them with cement.

DR. CLYDE DAVIS: I don't believe I have anything to say, but to thank Doctor Hipple, and Doctor Work for their compliments.

I want to say with reference to his filling falling out, I have had instances where I didn't say anything to the patient at all. I believe these fillings in the thirteen years I have been in practice, perhaps a dozen years, I will guarantee those are my best gold fillings today. I have seen them since, and for that reason, with that one thing in mind, forced me to take up porcelain. I believe it is possible to make them better than our gold fillings.

DOCTOR SHERWIN: It does not seem to me that cement under a gold filling is necessary to preserve the tooth. I remember a case four or five years ago—a filling put in four or five years—it was as perfect as any filling that had been put in. I don't believe cement is necessary under these fillings to preserve them. If the margins are exposed, and cavity well prepared, and gold properly condensed and well finished, I don't believe cement is necessary.



INFLAMMATION.*

BY W. H. HENKEL, D. D. S., ELYRIA, OHIO.

The subject which I have chosen for this paper is one of the greatest importance to both physician and dentist. It is one upon which we should hear more papers read in our meetings. The subject is known as inflammation, and permit me to refresh your memory with a few statements regarding same.

Inflammation is a series of changes in living tissue caused by an injury to that tissue, insufficient to immediately destroy the vitality of the cells, and is continued by specific bacteria. If the cause of the inflammation is arrested, the disturbance will be but temporary, and will soon subside. The system recovering from the nervous shock, the blood vessels will soon regain their normal tone, the vascular fluid will begin to flow in its wanted manner, the congestion of the capillaries will be relieved, and the hyperemic condition will pass away.

Descriptive inflammation is divided into three stages as follows: The first stage is hyperemia; by this is meant an excess of blood to a part.

The second stage is in the coats of the vessels. The vessel walls undergo a change, so that they no longer perfectly retain their contents.

The third change is in the tissue, where the extruded contents undergo a change. When the blood has once extruded from the vessel, it cannot re-enter same, but must be disposed in some other way. The changes in the blood vessels and the circulation, which may consist of dilatation of the vessels, and an increased flow; or a dilatation of the vessels and a decreased flow; or by oscillation, in which the blood flows back and forth, and the white corpuscles adhere to the sides of the veins, and piling up, block the passage of the blood; or by stasis, in which the blood in the vessels is stationary, or by thrombus, where the vessel walls die for the lack of nutriment, and thus acts as a foreign substance, and coagulates the blood in them. The escape of the fluid and the corpuscles from the vessels is going on at the same time as the change in the blood vessels. Inflammation causes the stoma between the epithelial plates of the vessel walls to greatly enlarge, and as a result of this, abnormal amounts of

*Read before the Lorain County Dental Society.

serum and corpuscles escape into the tissues, which coagulate, and the resulting product is known as lymph. This lymph is removed by the lymphatics, so if the part is well supplied with lymphatics, and they are normal, the inflamed part will be hard and dense. In inflammation the tissue cells become separated, blurred and indistinct. When this extravasated matter is infected with pathogenic or pyogenic micro-organisms, **degenerative processes are set up.**

There are certain clinical signs which attend inflammation in a greater or less degree. They are redness, heat, swelling, pain, and impaired function. Redness and heat are due to a larger amount of blood brought to a part in a certain length of time. The swelling is due to the exudate infiltrating the tissue, and is always the greatest where the lymphatics are the fewest, for then the liquid portion is not removed. The amount of swelling depends upon the locality of part, because some of the tissues are not capable of distension, for example, the periosteum in the case of a felon, or the alveolar tissue. Pain is due to the pressure of the exudate on the peripheral nerve endings, also to chemical irritation on the nerve terminals. The more rigid and less distensible the part, the greater is the pain. Impaired function is due to the fact that all tissue cells in that part are injured.

Degrees of inflammation are known as:

First: Serious inflammation, which is the slightest form and is due to a slight injury.

Second: Sero-fibrous is an intermediate stage, where more white corpuscles and fibrinogen escape into the tissue than did in the former.

Third: Fibrous; when the inflammation reaches this stage it may go into two directions, being either destructive or productive inflammation.

Productive inflammation is divided into healing by:

(a) First intention. This applies to wounds either traumatic or surgical, especially to those of an incised character. The parts must be brought into close adaptation and held there either by stitches or adhesive plaster until union of the two parts has taken place.

(b) Granulation, or second intention. This applies to wounds where a certain amount of tissue has been lost, or for

instance, where a tooth has been extracted, leaving a socket in the alveolar tissue. This process is a building up of cell by cell. The socket will at first be found filled with coagulated blood, which effectually seals the mouths of the ruptured vessels. After a few days this will have sloughed away, and the socket of the tooth root will be found occupied by a kind of translucent, jelly-like substance, this being the primitive tissue, and is very easily wiped away. Capillary loops are formed in the extravasated plasma, which as it is poured out will be found shielded by a kind of transparent glistening film, that protects it until the lost tissue has been restored, and the skin shall have formed over it.

DESTRUCTIVE INFLAMMATION.

When the inflammation is exacerbated, by continued irritation, or when new sources of irritation are introduced, the process of healing is interfered with, and the plastic exudate, instead of being organized into tissue, loses its integrity and is broken down, involving the surrounding tissue. This may be by **suppuration, gangrene, or necrosis.**

Suppuration is the formation of pus. The exudate containing leucocytes, or white blood corpuscles, which have migrated to the inflamed tissues, die from lack of nutrition, or continued irritation, and form the characteristic pus corpuscles. Pus is essentially a foreign substance, and nature puts forth her utmost efforts to expel it from the system. It always travels in the lines of least resistance, thereby destroying or disorganizing the tissues **through which it travels.**

The termination of inflammation is either in building up of the plastic exudate into new tissue, by first intentions or **granulation**, or in its degeneration and tearing down by suppuration, **gangrene, or necrosis.**

The final result depends upon the degree of the injury or lesion, upon external sanitary or unsanitary surroundings, upon constitutional tonic or atonic conditions, and upon the ability to maintain the circulation practically unimpaired.

GENERAL TREATMENT OF INFLAMMATION.

If the cause of the inflammation is definitely ascertained, the first step of the treatment will be to get rid of the cause. Then give rest to the inflamed part. If the inflammation has reached

the stage of effusion of its products, efforts should be directed toward bringing about resolution, or absorption of the lymph. Local cupping or bleeding, or by the use of counter-irritants.

If neither resolution nor building up of tissue seems possible or probable, efforts should be directed toward the promotion of suppuration, thus relieving the tissues of the products of the inflammatory process. It is here that the oral surgeon will have an opportunity for the best exercise of his best judgment, and all his experience will be needed in making his prognosis to determine the exact point at which the treatment should be changed. To ascertain when the degenerative process has begun, requires the nicest perception and discernment. In inflammation of the dental pulp, for instance, to know when it is no longer wise to attempt to preserve its vitality, when devitalization and extirpation are advisable, requires a thorough knowledge, not only of the whole inflammatory process, but of the symptomatology of all the lesions and complications as well.

W. C. Barrett says: "Whenever pus is present it must be promptly evacuated. There is no precept in practice that is so imperative as the one which instructs the practitioner at once to get rid of the pus. There is no surgical risk that one is not justified in taking if this product can be eliminated in no other way."

Pulpitis, or inflammation of dental pulp, does not differ from that of other analogous tissue, save as it is modified by surrounding conditions. Whether or not the pulp in its healthy, normal condition is or is not sensitive to external impressions is a question which cannot be satisfactorily answered. An entirely healthy tooth, surrounded by healthy gum tissue, gives no sentiment signs of the presence of a living pulp. As soon as a tooth does make itself noticeable, it is not in a healthy condition. The cause of which may be many. The gums may have receded from the neck of the tooth, exposing the cementum. Caries has perhaps invaded the tooth, exposing the dentin, thereby exposing the pulp to the irritating action and thermal changes of external agents. An inserted filling may be this outward irritant. A traumatic injury, a blow, inordinate use, the attrition of mastication, or any mechanical violence may be the source. Structural changes within the tooth pulp, such as the formation of calcific deposits, are a sufficient excitant.

Whatever the cause may be, there will be a determination of blood to the irritated pulp tissue and an engorgement of its capillaries. Because of the absence of the usual arterial and venous coats, the blood channels at once yield to the pressure, and as the dental pulp is without the full chain of lymphatics so that the excess of blood cannot be carried away rapidly makes it harder to treat than other tissue. The treatment in the earlier stages should be abortive. The first essential is to make a clear diagnosis of the case, by carefully considering all the symptoms, and to determine the exact stage of the inflammation. This having been done, the next step will be to remove the cause. If it is progressive caries, the cavity of decay should be carefully washed out, all debris removed, and an anodyne introduced. If any foreign substance is the irritant, it must at once be eliminated. Counter-irritants should be applied in order to promote metastasis. That is, a new focus of inflammation is created in an approximate territory; but which is upon the surface where it can be reached, and where resolution may be expected. This has a tendency to direct the impending blood currents, and thus to relieve the threatened engorgement of the pulp.

For further consideration we could take up the subjects of stomatitis, pericementitis, pharyngitis, tonsillitis, gingivitis, etc., but as the character of inflammation is practically the same, we will let this suffice.

PULP AND PULP-CANAL TREATMENT.*

BY C. G. HUGHES, D. D. S. PUNXSUTAWNEY; PENNSYLVANIA.

Having accepted the invitation of our chairman to prepare a paper for the Lake Erie Dental Association, I decided to give you briefly my methods used in pulp and pulp canal treatment, fully realizing it to be a very broad subject, and knowing there are many good and successful methods used, I give mine in hopes it may in some way enlighten some of my brothers in this particular line of work. I will speak from experience derived from devitalizing the pulps and treating of abscessed conditions of pulp canals of at least 500 cases in the past year and not knowing of one failure up to the present time. I shall divide my subject into three classes, as follows:

*Read before the Lake Erie Dental Society, May, 1905.

First. 'Extirpation of pulps, to devitalize the pulp by arsenic, or obtund by injecting cocaine.

Second. Treating prutrescent canals.

Third. Chronic abscesses, with fistula.

When, upon examination, finding the pulp exposed or inflamed, first open cavity, so as to permit free access of application of arsenic; usually use small pellet of cotton; dip in campho-phineque or cocaine, then mix in arsenic until fluid is practically taken up: have cavity dry as possible, then apply to exposure and seal with sandarach and cotton or gutta-percha stopping. The sandarach should be rather thick and well mixed in pellet of cotton in order to hermetically seal cavity. Have patient come back in 48 hours, remove stopping, open tooth so as to give plenty of room in order to freely penetrate canals.

Then drill out body of pulp and use very small canal drill or Donaldson broach, in order to carefully get to end of canal. Sometimes I find it necessary to slightly enlarge canals at start, and sometimes find one of the canals is similar to a piece of paper in flatness. In such cases you should use the smallest drill or broach you have and get out all you can. Then use strong carbolic acid and work that into the crevice, as best you can. If much hemorrhage, or even slightly, exists, use dioxogen, and force into canal with pellet of cotton and probe. Then thoroughly dry with hot air to the extent should there be a small portion of tissue in canal, the heat will practically dry it. Then mix oxpara (which is composed of formaldehyde, thymol, alum and creosote) to creamy consistency and apply with small probe and force through canal until you feel positive you have gotten it to the end of the canal; then take small pellet of cotton and force in each canal; the cotton will take up surplus of fluid from oxpara, and will leave the canal solidly filled with medicaments that will prevent any future danger of congestion or trouble from canal. Then put in filling as desired.

In many cases, when working for a travelingman and no time to wait for treatment, and in many cases where pulps are removed to set Logans or porcelain bridge connections, I use cocaine, at times hypodermic syringe, but mostly the Wilcox Jewett obtunder, which I find to be a very desirable instru-

ment in many cases. Before setting Logans or porcelain bridge connections I always fill apex of canal with oxpara. It closes apical foramen so as to prevent cement forcing through. I generally cleanse canal with chloroform before setting crown.

TREATING PUTRESCENT CANALS.

Pulps having died from natural causes and becoming putrescent, and at times through some unknown cause, may develop blind abscesses. In treating, when there is apparent inflammation, make opening to give free access, then inject dioxogen freely and use either canal drill or broach to remove diseased pulp, continuing to use wash freely until you feel you have canal thoroughly cleansed. In some cases I use sulphuric acid diluted: apply with aluminum probe, then thoroughly disinfect and dry: fill with oxpara as formerly described and you can feel safe in filling tooth at same setting and expect no further trouble.

Should the case be one where the tooth has attained a state of abscess, then open and cleanse thoroughly as in former case and use acid: fill with oxpara, as formerly stated, and put in temporary filling, and paint gums with dental tinct. of aconite and iodine. If abscess develops, freely lance and use peroxide and you need expect no further trouble.

CHRONIC ABSCESSES WITH FISTULA.

This class is in much better shape to treat, with most generally good satisfaction: cleanse canal as in former cases and use rubber on syringe and force dioxogen through until it comes out of fistula, if foramina. If root is not open, use small canal-drill and open it so as to give free passage for treatment. After thoroughly cleansing, fill with oxpara, forcing it through end of root, into and through fistula. It will cause a little pain at the time, but not for long. Then fill and crown if you desire, and you will find that in 99 cases out of 100 you will hear good results when you next see your patient.

I wish to describe several cases coming to me from brother dentists, after they had treated for a time, and advised the patient to have tooth extracted. Patient called and asked me if there was no salvation for the tooth. Upon examination, I found tooth had been drilled through at division of roots—teeth described being inferior six-year-old molars—canals were

treated as in former cases and after stopping hemorrhage of the opening made, I burnished a piece of R. S. Williams No. 30 gold-foil, holding to place with gutta-percha, then filled with cement and later crowned. Have had five or six such cases and the patients report they are very satisfactory. Some of them were a trifle sore for a few days, but soon got all right. Hundreds of teeth and roots are extracted every day that are very valuable. The treating of teeth is a great pleasure to me, and I feel that to be successful, one should be heart and soul in saving teeth that patients have no hope of saving. The man who does his work simply for the income and not for the glory of success and satisfaction to his patient cannot expect to do his work thoroughly or take interest enough in such cases to have them give satisfaction.

WHY PAINLESS DENTISTRY? *

BY J. A. RUPERT, D. D. S., MEADVILLE, PENNSYLVANIA.

In the consideration of this subject, I have, you will observe, said nothing of methods to be employed, but have confined my paper to a plea for the exercise of all the pain relieving methods at our command.

I will attempt to present to you humanitarian demands, professional advancement and business advantages for maintaining the position I have assumed.

By the term "painless dentistry" I mean the preforming of all dental operations with so little pain, that the grateful patient will term it "painless," which is possible, while absolutely painless dentistry is not always possible, though many operations upon the most sensitive teeth can be painlessly performed.

In times past, when patients have asked us to relieve the pain incident to dental operations, we have told them that it was "not possibly to properly perform the operation necessary and not cause pain," and then under the protection afforded by their faith in the truth of this statement we proceeded with the operation, while oftentimes our victims would writhe and moan and entreat us to desist. We would torture

*Read before the Lake Erie Dental Society, May, 1905.

them to the limit of their endurance in our effort to so place a filling in a tooth that it would not come out, and receive our fee. To this end we have run our burs until they were hot. Have chiseled off the frail enamel margins of occlusal cavities in such a manner, that with every chip the chisel would chop into the bottom of a sensitive cavity, with the weight of our hand behind it. Have cruelly forced the gum far up on the necks of the teeth in our effort to secure the rubber or have driven wedges against the gum without so much as an effort on our part to relieve the pain by local anesthesia. All this in an effort to complete the operation in the least possible time and defending ourselves by assuring our patient that in order the work be well done we must hurt them.

I have in mind a dentist, who recently told a patient that he could always tell work at sight which had been "painlessly" performed, and other words to convince him that pain relieving methods were disastrous to good work.

Thus far much of my reference to pain has been pain we have had it in our power for years to relieve by careful methods, or the use of local anesthetics, and not pain caused by the cutting of sensitive dentine, which it has only in recent years been in our power to safely obtund. So well is this now done, however, and with such safety, that this dentist or no other one could detect work so done, unless it was by the thorough manner in which it had been performed, for more nearly perfect operations are possible by pain relieving methods, than without. It is now just as possible to eliminate all the pain in cutting sensitive dentine, as it was impossible a few years ago and the time is not far distant, when people will cease to dread dental operations as now.

Why should we cause pain? In what light can you look upon the man who leaves his horse standing for hours in a storm, only for the reason of the effort required to stable him? Or on the man, who would allow his beast to suffer for the want of food and water because of the effort required to supply it? And yet you will cause many times the suffering every day to human beings and for no better reason than the effort required on your part to alleviate it. To illustrate: a man appealed to a dentist for the extraction of a tooth. The dentist was busy at the time and left his work and seating the new patient in the chair was about to at once fasten the for-

ceps on the offending molar. The patient, however, objected to this without the use of a local anesthetic, but was assured by the dentist that the operation would last but an instant and would not hurt him much. The patient insisted, however, whereupon the dentist complied and by the use of a local anesthetic, the tooth was extracted practically without pain. This patient's demand will be the universal demand in regard to all our operations, just as soon as people find out that relief from pain is possible.

In a paper by Dr. W. H. Whitslar, read three years ago, he said: "Were it not for pain, dentistry would never have become a professional pursuit. It would have attained only a high degree of mechanics. Dentistry, on the other hand, has now arisen to a scientific art in alleviating pain."

If it is true that pain has caused a trade to grow to a profession by demanding the scientific treatment of diseased conditions to subdue pain, is it not also true that the mitigating of pain incident to the operation itself places the profession on a higher plane.

In our hearts, we would be glad if the advertizer in dentistry was suppressed. He is ignored by the ethical of the profession. He is not recognized by the societies, nor can he become a member of them. He flourishes, however, and continues to get patronage and followers. Why?

In the more dentally educated mind, what do ye more than he? He makes fillings, which last as long as many you make. We have seen some very well finished plates coming from his hands, which filled all the requirements of an artificial denture to the public mind. You are the more skilful to be sure, but what do you do that he does not do in the estimation of the public? He causes pain, but you do, too. If you are to measure high above the quack, you must do something, which he cannot do, and that is make first-class operations and make them practically free from pain. Instead of then making plates, as you do now, in competition with him, you would be saving almost every tooth which came under your care, and would be looked up to as skilled professionally, rather than down upon, as tradesmen, who sold plates or gold or amalgam fillings at so much each and who charged for the material and made no charge for the time and skill required.

It does require time and skill to relieve pain in dental

operations, but people will not be slow to recognize it, if you will so practice.

What causes people to shudder when they enter your office and shrink from every instrument? Why do you find in the mouths of people, who are well-to-do, teeth decayed to the gum margins or crowns broken down and pulp exposed and aching, which literally drives them to you? It is the fear of pain. There is no other one thing causing the loss of so many teeth today, as the fear of pain. Scores of people, I might say, hundreds in every city are neglecting their teeth and losing them for no other reason.

I believe if all employed the pain-relieving methods at our command and taught people that they would no longer have to submit to torture, we would not be able to wait on all, who called upon us for our services.

The time will be, however, when people will know the possibilities of dentistry and happy will that man be who can meet the requirements.

PULP PRESERVATION.*

BY E. E. CHAMBERS, WARREN, OHIO.

There is an old Scotch saying, that "many a mickle makes a muckle," or that the small things of life are the essential requirements before we can attain the great. That attention to detail is necessary in order that we may acquire success in our undertakings, is an accepted fact, that in no profession is it so necessary to give careful treatment of the small things as in the practice of dentistry. A tooth is but a very small part of the human anatomy, a pulp of a tooth is but a small part of it; yet in its relation to dental operations, it is gigantic and supreme in importance. The preservation of the dental pulp is one of the most important subjects in dentistry. We all believe in the preservation of teeth, and the best possible way to do this is to give the pulp very careful consideration. So common has the practice become of attempting the performance of filling complicated cavities and at the same time saving of pulps, that in operating, dentists are too

*Read before the Lake Erie Dental Society, May, 1905.

frequently found forgetful of the general principles which underlie all such manipulations. To contend that all pulps can be saved is to maintain a very foolish fallacy, but that the vitality of an exposed pulp may be preserved, and that a tooth so affected can be successfully treated and filled, is a fact. I have tested and proven this truth to my own satisfaction in a large number of recorded cases. If a patient is about normal, there are only three conditions that can exist in an exposed, or nearly exposed pulp.

First. It may maintain just as it normally existed, its integrity unaffected.

Second. It may be susceptible to that extent of stimulation, which re-excites the formative capacity of the odontoblast cells.

Third. It may succumb to the irritation. But with the advantage we have at the present time, the last condition can be overcome in a great majority of cases by careful operating and manipulation of various preparations, some of which I wish to make special mention later.

The reason why this delicate dentistry is employed to preserve the pulp is, primarily, that we avoid its troublesome removal in accessible canals. If the pulp is preserved, the tooth is not so liable to irritation and disease, or to become foreign to the parts with which it is associated. The irregular shape of most canals renders it impossible to totally remove the pulp. The danger of bacterial infection is eliminated. The uses of dangerous escharotics, the breaking of broaches, and the perforation of the apical foramen are avoided. Of these reasons the most important is the unavoidable failure by our most skilled operators to perfectly fill the root canals. I am aware that some of my brothers in the profession may take exceptions to this statement, but how many of you, after you have given the most painstaking effort that your work may approximate the best results, have been in a position to determine whether or not the canals are completely filled? No ocular observation will determine it, and only the stress of time, or perhaps the dangerous ulcer or abscess will indicate the lack of imperfect filling. Some years ago the matter of percentage of perfectly filled canals was

brought to my attention so forcibly by my college professor, that I became deeply interested in the results. I have been fortunate in having access to his data and am able to state the result of his years of study, and X-ray examinations show that only 25 per cent are successfully filled, and of the remaining 75 per cent the enormous sum of 30 per cent are complete failures.

To describe all the different kinds of pulp preservers and nerve cappings that are on the market at the present time, would be rather difficult and unsatisfactory, but I will describe those that I have found reliable and have used in practice the past years with the best results.

FOR EXPOSED PULPS.

About Jodo formagen cement: The name indicates a powder and a liquid. The powder is a combination of formaldehyde and iodine salts; the liquid consists of eugenol, carbolic acid and lysol. The inventor explains the effects in the following: To the carbolic acid is due the quick arrest of pain, while the iodine salts and formaldehyde at once neutralize the pus forming bacteria, especially the staphylococcus pyogenes aureus. The iodine salts, in addition to drying up secretions, exercise a beneficial effect on granulations without irritating the pulp. In all cases it is best to work with the protection of the rubber dam if possible. After removing as much decay as possible, and finding the pulp exposed, I carefully wash out the cavity with a syringe filled with warm water, and then with a weak solution of lysol, or any accepted antiseptic in warm water. Then dry the cavity and mix cement to a creamy consistency only, and apply very carefully directly over the exposure without pressure. It will harden in a very few minutes. After removing the carious dentine at every other point in the cavity, the next precaution will be to place another cement over this, oxychloride of zinc preferred, to form a solid base for the permanent filling.

Another preparation that I have used with very gratifying results is Caulk's nerve capper. Its principal physiological action is a sedative. It may not arrest the pain so quickly, but if applied carefully, throws across the floor of the cavity a strong insoluble bridge, which is not placed there by packing, but through capillary attraction, attaching itself to the

walls, as it does, it excludes all the air between the preparation itself and the floor of the cavity. The material is an anti-septic and non-irritant. The theory is this: that they have removed the irritant from the cement and added a drug so as to make the cement a sedative.

The exposed pulps are not the only source of trouble and irritation by any means, but cavities that extend near the pulp should have a protector to shield them from thermal changes and currents that are formed from metallic fillings. For this class, if amalgam is to be used, I use Caulk's capper, or oxychloride of zinc cement. In mixing the cement do not use the chloride in excess, but have the mixture rather stiff, so that it can be formed into shape of a cap and placed into the cavity and packed into place. If there is a slight irritation, the odontoblast cells will become active and form secondary dentine. For gold fillings in the six anterior teeth, I either use Caulk's capping or oxychloride of zinc, whichever is the most applicable to the case in hand. But if not in the six anterior teeth, I use tin always. There will be probably little discussion on the advisability of using tin in this latter case, as over half a century of experience has established its stability as an intermediate with gold. It is a very well established theory that tin hardens the dentine and that the current conductivity is exceedingly small. And again, if used in any large cavity, we have the wonderful formation of secondary dentine.

One more fact I desire to call to your attention, at the risk, perhaps, of being accused of advertising dental supplies: It is that the sale of oxychloride of zinc cement has been more in the last three years than in the previous fifteen, indicating its popular use in the profession at the present time.

In conclusion, I wish to encourage repeated trials and close attention to pulp preservation as a means of elevation to the profession of dentistry, and as a source of greater pecuniary reward for our labor. Is it not worth more to preserve a live tooth for a patient, than to attempt to make a dead one serve the purpose, especially when it is attended by greater risks? From the day when dentistry was limited to the extracting of an affected tooth to the present time, when capping restores it to its normal use, is a far cry, and the way has been hard, but study, intelligent experiment and a

systematic use of the knowledge, gleaned by those who have gone before, has raised our profession to the standard of the most useful modern science, and the present is not all, but the future ever glows brighter in the prospects of greater things to come. If we wish fully to realize these we must intelligently apply our science in a manner, not destructive to nature's functions, but in a way to aid ever-ready nature in its rejuvenating work.



SUGGESTIONS

PEROXID AND LIME-WATER.

The dilution of peroxid with an equal volume of lime-water corrects any acid condition that may exist, retards the destructive influence of H_2O_2 on granulations, and does not detract from its efficiency.—*Forum*.

FRACTURED EDENTULOUS JAW.

J. D. Patterson.

In edentulous cases of fracture there is usually a plate that was worn at the time of the accident. This makes a beautiful interdental splint and solves the difficulty of adjusting the parts and the delay of making a splint for the case.—*Dental Cosmos*.

POLISHING GROUND PORCELAIN.

When it has been necessary to grind a crown, or facing, the porcelain can be re-polished equal to the original baked glaze by using oxide of tin on a wet Barker's wood point used on lathe at high speed.—*Tri-State Quarterly*.

SHADING PORCELAIN WITH CEMENTS.

F. E. Cheeseman, Chicago.

To ascertain the effect a certain color of cement will produce on an inlay, mix the powder with water, place it in the cavity and force the inlay to place over it. This gives the same effect in appearance as mixing with phosphoric acid. In this way a test may be made before the actual setting, and the correct shade of cement powder selected.—*Dental Review*.

AN AID IN POLISHING DENTURES.

A small brush-wheel with a single row of moderately-stiff bristles is excellent for polishing around plain teeth in vulcanite work. If wet soap is applied to the bristles they will retain the wet pumice and cut like a knife. Soap rubbed on a felt buff-wheel will retain the wet pumice, causing it to cut much faster and considerably lessening the time and labor of polishing an artificial denture.—*Dental Register*.

PREPARATION TO STOP PAIN IN A TOOTH.

E. G. McAirey, Chicago.

The following preparation has been found effective in relieving pain in a tooth where other remedies, usually employed, have produced no results.

Carbolic acid	dr. 1
Oil Sassafras	dr. 2
Eugenol	dr. 2
4 per cent. solution Cocaine.....	dr. 1

In having the preparation made up, be sure that eugenol is used and not oil of cloves.—*Dental Review*.

TO COLOR PLASTER TO FACILITATE SEPARATION.

E. P. Beadles, Danville, Va.

Some one has suggested the use of a little blueing in the water for mixing the plaster for running the case, in order to facilitate the separation. This is an excellent idea, and should be used by all who have not tried it.—*Dental Hints*.

A SIMPLE PROTECTOR FOR THE HOT-AIR SYRINGE.

The metal portion or end of the syringe may be covered with a piece of white rubber tubing of the same diameter; the tubing to be about an inch shorter than the metal end. When in use, the tubing is to be drawn up on the metal toward the bulb, exposing the tip for heating; after which the tubing is pushed out so as to cover the point, thus confining the heat and, being a non-conductor, effectually preventing the burning of the lips or mucous tissue.—*Dental Brief*.

A RE-ENFORCED WEDGE.

Frederick Crosby Brush.

This wedge is particularly applicable for cases wherein it becomes necessary to wedge across wide spaces, as in regaining the space of a missing tooth. It consists of the usual piece of cottonwood which has been compressed with the pliers or vise and carved to the desired size and shape. Through the wedge thus prepared a hole is drilled, and into it is threaded and compressed a large piece of ordinary separating rubber. The principle of it is, that after the wood has expanded to its limit it will relieve the pressure on the rubber, which will attempt to resume its original shape, thus forcing the sides of the wedge further apart.—*Dental Brief*.

TO HOLD BASE-PLATE TO MODEL WITHOUT WAXING.

H. W. McMillan, Roseville, Ill.

Snap a rubber band around base-plate and model on articulator while setting up teeth; it saves waxing the plate to the model. The bands are readily withdrawn when plate is waxed up. Where a base-plate is waxed to model with hot wax and removed for trial in the mouth, the plaster adheres to the wax and makes a defective model at the edges. The band avoids this. Notch the model's edge where the band is used; this will hold it in place and save many a trial plate's fall. Put band crosswise on lower and lengthwise on uppers. Rubber bands stretched tightly around models of upper and lower with bite between will hold them in place while attaching to the articulator.—*Tri-State Quarterly*.

FOR BRIDGE REPAIR.

When the pins are intact, as usually occurs, wind thin platinum in a figure 8 about the pins and solder to a base of very thin platinum. Then punch holes for pins and adjust in the mouth and burnish the backing against the base and crimp the barrels about the pins. Remove and bake body to reproduce the broken facing. Cement to place. *Western Dental Journal*.

TEMPERING FINE STEEL INSTRUMENTS.

W. A. Brownlee, Mount Forest.

Steel is hardened by heating to a cherry-red and dipping suddenly into cold water or oil. In this condition it is altogether too hard for cutting instruments of any kind. The temper is then drawn to suit the requirements by submitting the steel to a gentle heat. The variation in hardness is indicated by the color on the surface and when the proper color is reached the steel must be again dipped to prevent it from becoming too soft. In order to distinguish the color accurately the surface should be rubbed bright with emery cloth. Heavy tools can be "drawn" in direct contact with the heat, but fine instruments should be treated through some medium, and for this purpose I use asbestos over gas, gasoline or alcohol flame; the finer the instrument the thicker the medium should be.

The following is about the proper color: For taps and dies and metal-cutting tools, a straw color; for excavators and burs a straw color, shading to purple; for rubber chisels and scrapers and wood-cutting tools, purple; for steel springs, blue.—*Dominion Dental Journal*.

TIPPING TEETH IN CROWN AND BRIDGE-WORK.

Thomas J. McLernon.

A wise method of procedure when it is desirable to tip facings or strengthen the backings in crowns or bridges is as follows:

Use preferably, *thin* material, say, 34-gauge, whether pure gold, platinum or "crown metal."

Burnish closely on the facing so as to accurately shape backing.

Carefully remove backing.

Place pieces of graphite (lead from a pencil) in pin holes to avoid solder filling them.

Apply solder (and the metal, if used) for tipping at the proper position and flow solder. This solder should be somewhat higher grade than is to be used when crown or bridge is finally soldered.

Reapply backings to facing, fasten the pins in the usual way, assemble the parts, and finish work.

This speedy method insures that there will be a sufficient thickness of metal at the tips to prevent ordinary strains, bending the backing and springing off the facing, which is liable to occur when, owing to the solder having drawn up towards the body of the work during soldering, very little metal has been left behind the tip of the facing.—*Dental Hints*.

CAVITY PREPARATION FOR INLAYS.

Frank E. Cheeseman, Chicago.

Complaint is frequently made that porcelain inlays are liable to come out of labial cavities. The chief trouble is that the cavity preparation is imperfect. A cavity with a rounded base will not do. Make the axial wall flat and make an angle between this wall and the surrounding walls. It need not be a sharp right-angle, but it may be very nearly this, and still permit the removal of the matrix. The tendency to make rounded, saucer-shaped cavities is accountable for most of these failures.—*Dental Review*.

A NEW PORCELAIN CROWN.

C. H. Worboys.

I will describe what to me is a new method of adapting a porcelain crown, or hood, to a natural tooth which does not require a knowledge of porcelain technic or that the pulp be devitalized and removed.

The tooth that is to be operated upon should first be anesthetized with cocain and then the enamel ground off, leaving a shoulder just below the gum line and the stump conical in form, if practicable, leaving sufficient dentine to protect the pulp.

The tooth that is used for this operation may be a counter-sunk pin tooth, such as is used for rubber plates, or a Davis crown, or any other porcelain tooth, or crown that has a hole in its center, the larger the better, usually.

An impression is taken of the prepared stump with white sheet gutta-percha with a tray made of a band of German silver, or copper, shaped to fit the gum on the labial and lingual sides. For this purpose I have found that a shell, such as is used for a

seamless crown, that can be placed between the adjoining teeth, to be very convenient.

The gutta-percha is warmed well, then placed in the tray, carried firmly to place, and held until it cools. It must be carefully removed, then a piece of the sheet of the gutta-percha, about three-fourths of an inch wide, is warmed and wrapped around the impression and tray, the edges being stuck together. The impression is then poured full of any of the low-fusing alloys, producing a model of the stump on which to roughly fit the crown, which is done entirely with grinding stones. For the grinding I like the carborundum stones mounted with shellac. The gem stones are necessary to grind the inside of the crown so that it will fit over the stump.

By painting the metal model with oxide of iron and glycerine, you can tell where the crown strikes on the model, and by frequently trying on the crown and grinding carefully it can be made to fit very closely, occasionally trying in the mouth for noting correct position.

The final fitting should be done in the mouth where the stump is to be painted and the crown ground, or the crown painted and the stump ground as you prefer for the best interests of the case.

When the crown is fitted and ready to set, the stump should be cleaned and dried, then a quick-setting inlay cement is mixed thin and placed in the crown and the crown placed as soon as possible.—*Dental Register*.

SADDLEBACK AND COUNTERSUNK TEETH IN BRIDGE-WORK.

F. L. Fossume, New York City.

The use of the saddleback and countersunk teeth in bridge-work, stationary or removable. Mode of procedure: When a model is obtained with the attachments of the bridge in position, grind and occlude the teeth, and allow room between the alveolus and teeth for the gold, which must be thick enough for support in mastication; now remove the teeth and cut a gold disc a little more than a sixteenth of an inch larger than the under surface of the tooth; anneal and punch holes for the pins, slip into position and burnish to fit; cut four slits in the rim extending outside of the tooth and bend the rim up over the tooth; remove, and solder the four joints. This is best done

by investing with the lower surface up and the outer part of the rim exposed. The cap can at this time be strengthened by flowing solder over it. With countersunk teeth the gold will have to be split in the center as well, so as to burnish it into the hollow under the tooth; before removing, put a little wax into the hollow in the gold so as to keep the plaster from running through. When soldered the caps will fit the under surface of the tooth perfectly, provided the gold was burnished well into place.

The teeth with caps are now put on the model and waxed into place. Attach the wax to the gold only, as the teeth are to be taken out before the bridge is invested and soldered. When this is done, place strips of clasp metal under the caps and flow the solder thick, so as to make a smooth surface. This will make the bridge strong enough to withstand the stress of mastication.

If the holes for the pins of the saddleback tooth are covered with the solder, cut them out with a bur from the inside, where they will be half way through. When the bridge is finished and polished, set the teeth into it with gutta-percha or cement. Gutta-percha is preferable, as the teeth can be easily removed and replaced if necessary.—*Items of Interest.*

OBTAINING PERFECT CONTACT POINT AND CORRECT OCCLUSION IN LARGE PORCELAIN INLAY RESTORATION.

F. E. Cheeseman, Chicago.

Fill matrix nearly to occlusion with porcelain in the ordinary way, being careful not to have any cracks in the margin of the matrix, or checks in the margin of the porcelain. Place this partially-completed inlay in the cavity and obtain an impression and bite with modeling compound similar to a "mush" bite. After removal from the mouth, flow a film of soft wax over the cavity surface of the matrix and place it in its relative position in the impression. Pour models with plaster and mount on articulator. After removing the modeling compound, flow cold water over the inlay to harden the wax and the result will be a perfect imprint of the matrix in wax. The inlay may then be removed and replaced at will and built up with porcelain to exact occlusion and contact.—*Dental Review.*

NEW PUBLICATIONS

HYGIENE AND PROPHYLAXIS OF THE MOUTH AND TEETH. By Charles R. Hambly, D. D. S., Bradford, Pa. Published by the author

A booklet giving instructions on the care of the teeth and mouth and intended for instruction of patients. The text is well written and the booklet should serve a useful purpose.

NOTES ON DENTAL PORCELAIN, A PRACTICAL TREATISE ESPECIALLY DEVOTED TO THE INTERESTS OF THE BEGINNER. By W. Walter Gilbert, D. D. S., Philadelphia. S. S. White, Dental Mfg. Co. Pub. 1905.

The book is a practical working guide for the porcelain worker. The text covers the subject thoroughly and is not confined to any one method but presents all the best practical methods and instructions in their use.

Every phase of porcelain work is taken up and lucidly explained.

The book is profusely illustrated and the numerous side heads used make a handy reference guide. It is a book that every dentist should have for he will profit by its use.

THE ROLL OF MODERN DIETETICS IN THE CAUSATION OF DISEASE. By J. Sim Wallace, M. D., D. S. C., L. D. S., Hon., Dental Surgeon, West End Hospital for Nervous Disease, and Assistant Dental Surgeon National Dental Hospital, W. London: Bailliere, Tindall & Cox. Pub. 1905. Price 3 S., 6d.

This book is a collection of essays which originally appeared in The British Medical Journal, Lancet, Medical Press, British Dental Journal and British Journal of Dental Science.

Some of the material in the book, however, appears for the first time. To give the readers an idea of what it embraces we will mention the subjects treated as follows:

The Causation of Disease; The Increase and Decrease of Disease; The Physiology of Mastication; Some effects of the Refinement of Food; Nasal Obstructions and Mouth Breathing; Physical Deterioration in Relation to the Teeth; Comment on Physical Deterioration in Relation to the Teeth; Speculations and Suggestions.

An interesting book and a subject that should be better understood by dentists generally.

PORCELAIN INLAY, A TREATISE ON ITS THEORY AND PRACTICE IN DENTISTRY. By Arthur E. Peck, M. D., D. D. S., Minneapolis, Minn. Third Edition. Published by the author.

The author has added new methods and a number of new illustrations to the last edition of his book in which he says, he has endeavored to formulate a system controlled almost by mechanical principles, therefore it can be easily followed and will insure to the large majority as uniform results in porcelain as those obtained with other filling materials.

One important improvement in the system is the method of constructing an amalgam counter-die just the thickness of the platinum larger than the cavity. This is used to reswage the matrix in after each baking, insuring a perfect fit to the inlay regardless of any changes which might have occurred by contraction or expansion.

This also simplifies the operation materially and allows the inlay to be backed without an investment, which is a saving of time. This step eliminates many parts of the outfit which were necessary with the other method of making an inlay and makes it possible to furnish the entire outfit and a copy of the book to the practitioner for \$8.00.

ORAL PATHOLOGY AND THERAPEUTICS by Elgin MaWhinney D. D. S., Chicago, Professor of Special Pathology, Materia Medica and Therapeutics, Northwestern University Dental School—Published by The Consolidated Dental Mfg. Co., N. Y., 1915.

Within the covers of this book of 233 pages will be found a fund of practical information on this subject.

It has been the aim of the author not to burden the volume with needless pathological or histological detail, but

rather to present such phases of these subjects as will furnish a scientific basis for practical therapeutics as treatment of disease without knowledge of its pathology has and always will be a decided failure.

The subjects treated are: Dental caries; Dental Pulp; Hypersensitive Dentine; Constructive Diseases of the Pulp; Destructive changes in the Pulp; Pulp Capping; Pulp Devitalization; Cleansing and Filling Pulp Chambers; Suppuration of Tooth Pulp; The Bacteria of Pus; Diseases affecting the Peridental Membrane; Infection; Instrument Sterilization; and Germicides; Management of Discolored Teeth; Diseases of the Peridental membrane having their beginning at the gingivus; Hypercementosis and Root Resorptions; Resection of Roots and Plantation of Teeth; Diseases of the soft tissues of the mouth; Oral manifestations of syphilis; Diseases of maxillary Sinus; Management of Diseases of Children's Teeth; Facial Neuralgia; Shock.

Concisely written, well illustrated and containing the latest and best methods of treatment makes this work one of great value to every dentist.

A PRACTICAL TREATISE ON ARTIFICIAL CROWN, BRIDGE, AND PORCELAIN-WORK. By George Evans, Formerly lecturer on Crown and Bridge-work Baltimore College of Dental Surgery, Member National Dental and other Societies. Seventh Edition. Philadelphia: S. S. White Dental Mfg. Co. Pub. 1905.

The seventh edition of this familiar work has been noticeably enlarged; it has, in fact, owing to the rapid progress of this branch of dentistry, been almost entirely rewritten.

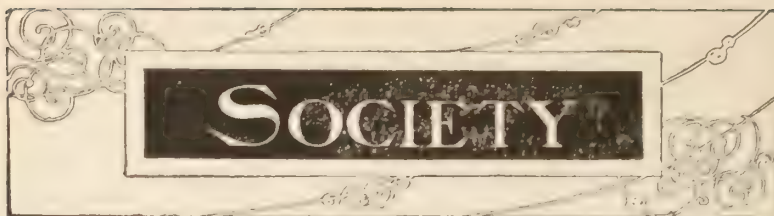
Like all books of its kind it is largely a compilation of the regularly accepted methods of practice and many new methods have been added to this edition. The author states, however, that the recent innovations inserted as worthy of credit and recognition he has in most cases practically tested.

The author says that his endeavor has been to make the text comprehensive without bulkiness, concise without sacrifice of clearness and brevity of statement, and to avoid repetition except when it conduced to better understanding. Methods which permit the attainment of the desired results without the devitalization of pulps, and with the least mutilation of teeth,

and the least exposure of metal, are given prominence. So, also, in cases when practicable, constructions are advocated which permit the work to be removed and replaced by the patient, or when cemented to place by the dentist.

The work is divided into five parts: In the first, preparatory treatment of teeth and roots for crown work is considered; In the second we find a comprehensive treatment of artificial crown work embracing all kinds and styles of crowns and their application; in part three, bridge-work is fully considered; in part four porcelain dental art, including instructions regarding porcelain compounds, or bodies, furnaces, the fusing of porcelain, staining, character and stability of low and high fusing porcelains for inlay and crown work, porcelain inlays from both high fusing and low fusing bodies, special inlays, roots, etc., and porcelain and platinum crown work and bridge-work are well written; while part five treats of materials and processes used in crown and bridge-work. Some 750 illustrations are used in the text. In its present form this book is a sort of condensed encyclopedia of all the information of value to those interested in this branch of dentistry.





THE JENKINS SOCIETY.

I have the honor to inform you that on the first of September "The Jenkins Society" was formed, with the following charter members:

Dr. W. I. Brigham, So. Framingham, Mass., president; Dr. R. S. Miller, Philadelphia, Pa., vice-president; Dr. H. H. Gorton, Naugatuck, Conn.; Dr. F. E. Cloud, New York, N. Y.; Dr. J. Z. Ray, Haverhill, Mass.; Dr. J. W. Shaw, Springfield, Mass.; Dr. E. P. White, Cambridge, Mass.; Dr. G. L. Sturgis, New Haven, Conn.; Dr. P. J. Macdonald, Springfield, Mass.; Dr. F. S. Baston, Norwood, Mass.; Dr. E. H. Goldberg, Bennettsville, S. C.; Dr. C. A. Neal, New Bedford, Mass.; Dr. L. H. Chivers, Newburyport, Mass.; Dr. C. W. Gates, Waterbury Conn.; Dr. J. R. Powell, Jr., Brooklyn, N. Y.; Dr. J. H. Tuttle, Brooklyn, N. Y.; Dr. W. R. Wengorovius, Brooklyn, N. Y.; Dr. J. B. Brown, Brooklyn, N. Y.; Dr. C. S. Hurlbut, Springfield, Mass.; Dr. C. F. Gibbs Bridgeport, Conn.; Dr. W. F. Shaw, Westfield, Mass.; Dr. D. C. Shaw, Springfield, Mass.; Dr. H. J. Pillion, Hartford, Conn.; Dr. A. F. Wyman, New Bedford, Mass.

The objects of this society are to disseminate information in regard to the use of porcelain, in dentistry and to encourage the proper use of porcelain, by clinics and demonstrations. The society is to be international in character and any dentist in good standing, who is interested in porcelain work, is eligible to membership.

The annual dues are \$1.00. The dues are to defray the expenses of publication and distribution of new literature on porcelain. We shall appreciate your advising your readers of the establishment of this society. All applications should be addressed to the undersigned.

Very truly yours,

B. C. GUILLE, D. D. S. *Secretary and Treasurer*,
Penn Yan, N. Y.

NORTHERN ILLINOIS DENTAL SOCIETY.

The 18th. Annual Convention of the Northern Illinois Dental Society will be held at Elgin, October 18, and 19, 1905. All Dentists of Northern Illinois and surrounding territory are most cordially invited.

A. M. HARRISON, *Secretary*.
Rockford, Illinois.

MICHIGAN STATE BOARD OF EXAMINERS IN
DENTISTRY.

The Michigan State Board of Examiners will meet at Ann Arbor on October 31st. at 9 a. m. for the purpose of examining candidates for the Michigan license. Intending candidates will please notify any member of the Board as soon as possible.

CHAS. J. GRAY, *President*,
Petoskey.

C. H. OAKMAN, *Secretary*,
29 State Street, Detroit.



AFTERMATH

PERSONAL AND MISCELLANY.

California Dental Board Examination.—Out of 84 candidates for certificates to practice dentistry in California 62 were successful in passing the examination.

Dr. Hurd Dead.—Dr. Hudson P. Hurd, of Cleveland, died September 6th., age 85 years. Dr. Hurd was the first dentist in Cleveland to give "laughing" gas.

When in Doubt—When in doubt don't extract. When in doubt don't make a bridge. When in doubt don't put on a crown. But when in doubt devitalize the pulp.—*Dominion Dental Journal*.

Dentist is Shot.—Dr. J. P. Faun, of Ardmore, I. T., was probably fatally wounded Aug. 8th by Tom McGhee who shot him three times. The trouble it is claimed grew out of family affairs. McGhee was arrested.

Leaves Office on Account of Ill Health.—Dr. R. E. Crumrino, of Washington, Pa., has been obliged to dispose of his dental practice on account of ill health. Dr. Paul Woods of that city will take his practice.

Died in Dentist's Chair.—Miss Anna Hootman, aged 58, died in a dentist's chair in Keosauqua, Iowa, Aug. 25 after having five teeth extracted. Physicians said her death was due to Brights' disease aggravated by the shock.

Deaths—Dr. G. J. Harris, of McMinnville, Tenn., Aug. 18 age 65 years. Dr. Thomas G. Loockerman, of Washington, D. C., Aug. 9, age 81 years. Dr. Frank R. Richards, of Chicago, ended his life Sept 6 by firing a bullet into his brain.

Vulcanizer Explodes—A vulcanizer in the laboratory of Dr. Wm. H. Fox, of Morrisville, N. J., exploded August 18 badly damaging the room. Dr. Fox had a narrow escape from injury. The total loss to apparatus and laboratory was \$35.

Will Limit Practice to Orthodontia—Dr. Wilson Foster, formerly of Kenton, O., has located in Cincinnati for the practice of Ortho-

dontia. Dr. Burt Abell, formerly of Adrian Mich., is practicing Orthodontia as a specialty in Toledo, Ohio.

Painless Dentistry Caused Death—Mrs. Sarah Butler, of Lima, O., died Aug. 23 as the result of painless extraction of four molars. Blood poison and lockjaw set in, food being unable to pass her lips for three days. Mrs. Butler was 26 years old.

Explosion in Dentist's Office.—A vulcanizer exploded in the office of Dr. J. H. Duaght of Des Moines, Iowa, Aug 4 badly wrecking the laboratory. Glass was thrown around the reception room and the damage will be several hundred dollars. No one was injured.

Missouri Dental Examiners Appointed.—Gov. Folk of Missouri appointed the following members of the state board September 8th: H. B. Purl, Kirksville; T. E. Turner, St. Louis; S. C. A. Rubey, Clinton; R. D. McIntosh, Monnett; C. B. Coleman, Poplar Bluff.

Woman Dies Under Influence of Ether.—Mrs. George Rauscher, of Rochester, N. Y., died in a dentist's chair Sept. 3 while under the influence of Ether, preparatory to having fourteen teeth extracted. A physician administered the anesthetic and all of the teeth had been extracted when the woman died.

Northeast Nebraska Dental Association.—The following officers were chosen: Dr. C. E. Brown, Emerson, president; Dr. T. B. Hickert, Wayne, vice-president; Dr. C. S. Parker, Norfolk, corresponding secretary; Dr. E. M. Hagin, Bancroft, recording secretary. The next meeting will be held at Norfolk in October.

In the Dental Chair.—"My work," remarked the baldheaded dentist, "is so painless that my patients often fall asleep in the chair while I am operating!"

"Huh, that's nothing!" retorted his rival. "My patients nearly all insist on having their pictures taken while I am at work, in order to catch the expression of delight in their faces!"—Chicago Journal.

Married.—Dr. Leo T. Sanerbrun, of Mansfield, O., and Miss Ora Lederer, of New Washington, were married September 3rd.—Dr. D. M. Matteson, Clinton, Mich., and Miss Eleanor Tuttle, were married June 28th.—Dr. G. O. Wright, Adrian, Mich., and Miss Florence Clement, were married June 28th.—Dr. W. E. Neff, of Waterbury, Conn., was married August 28th. to Miss Edith W. Knight, of Chapin, Conn.

Suit Against a Dentist.—Suit for \$10,000 instituted in the Baltimore Court Aug. 21 by Miss Bessie Brannan, through her father, John Brannan, against J. Frederick Downes, a practicing dentist of Baltimore. The plaintiff in her declaration alleges that the dentist in attempting to fill her teeth on August 1, 1905, by the improper use of instruments and drugs caused her to become seriously ill, and her life was and is still endangered.

Queer Mistakes.—Says the London Chronicle: "It is understood that Dr. Thomas Evans, the most celebrated of court dentists, is writing his reminiscences of the second empire in France, and that the work will appear in the winter with a leading English house. As may be remembered, it was Dr. Evans who assisted the Empress Eugenie to escape to England." Dr. Thomas W. Evans, the American dentist who assisted the Empress Eugenie to escape from the Paris mob in 1871, died in Paris Nov. 15, 1897. His body lies in Philadelphia.

Burglaries.—Dr. J. W. McKinson, of York Pa., on his return from a vacation discovered that his office had been robbed of \$100 worth of gold and a quantity of artificial teeth. The office of Dr. Dennison, of Geneva, N. Y., was entered August 7 by burglars and scrap gold worth \$15 taken. Dr. T. W. Thomas' office of Wilkesbarre, Pa., was burglarized Aug. 13 and plate-gold, solder and bridge-work taken. The loss amounted to \$50. Burglars entered the office of Dr. A. J. Wildanger, of Flint, Mich., and secured \$750 from the safe.

Dentist Accused of Bigamy.—An indictment charging bigamy has been found against Dr. George A. Witzhoff, of New York, a dentist and chemist, who is claimed by the police to have forty wives, with a matrimonial record in nearly every large American city.

Four women have been found here who allege they were wedded by him and abandoned after having parted with all their money. Witzhoff has not been seen in New York for several months, but the attorneys who are at the head of the prosecution claim to have a clew to his whereabouts.

Delta Sigma Delta Fraternity.—The Annual business meeting of the Supreme Chapter of Delta Sigma Delta Fraternity, was held the 28th, the Supreme Grand Master, R. Ham'll D. Swing, presiding. The Fraternity is in a most flourishing condition, having over a thousand active members. The officers elected for the following year are: Supreme grand Master, J. D. Patterson, Kansas City; supreme worthy master, Henry C. Raymond, Detroit; supreme scribe, (re-elected), Charles R. Turner, Philadelphia; supreme treasurer, John Quincy Byram, Indianapolis; supreme historian, Frank Holland, Atlanta.

Chinese Woman Dentist.—A fully equipped dental office has been opened in Chinatown, San Francisco, and a bright sign at the door conveys the information that the operator is Dr. Faith Sai So Lung.

The doctor is the only Chinese woman in this country who is permitted to practice dentistry. She was one of the recent forty graduates of the dental department of the College of Physicians and Surgeons. She had attained an average of 80 per cent. in all her studies.

She has found little difficulty with any of her studies, with the exception of dissecting. The Chinese have an inbred horror of dead bodies and the first time she entered the dissecting room she nearly fainted.

But she got over all that, says the New York World, and has had much experience since then.

Interstate Dental Fraternity.—The Interstate Dental Fraternity held its annual business meeting the 25th, and re-elected Secretary R. M. Sanger, Treasurer Charles A. Meeker, and various State vice-presidents. A State Chapter was organized in Michigan, with Dr. Charles H. Oakman, vice-president, and in Florida with Dr. W. G. Mason, vice-president. The annual "feed," the same night, was managed by vice-president, R. Ottolengui, of New York, in a creditable manner. Frank O. Hetrick, of Kansas, an unconsciously "funny man" presided. Elbert Hubbard, a long-haired, but eloquent freak from East Aurora, was the principal speaker, and said things worth listening to. He was followed by B. Holly Smith, George E. Hunt, and J. D. Patterson, all of shorter hair but of equal eloquence.

Mississippi Dental Association. The Twelfth Annual meeting of the Mississippi Dental Association, held in Jackson, elected the following officers: President, Dr. A. B. Kelly, Yazoo City; first vice-president, Dr. L. B. McLaren, Natchez; second vice-president, Dr. J. F. Scott, Summit; secretary, Dr. E. Douglas Hood, Tupelo; corresponding secretary, Dr. W. H. Reaben, McComb City; treasurer, Dr. C. C. Crowder, Kosciusko. Executive committee: Dr. W. O. Talbot, Biloxi; Dr. C. F. Boger, Natchez; Dr. E. Douglas Hood, Tupelo. The next meeting promises to be the best ever held and preparations are now being made for a good series of papers and some interesting clinics. The Thirteenth Annual meeting will be held in Gulfport between the 1st and 15th of June, 1906. Exact date to be fixed by the executive committee.

National Association of Dental Faculties.—The 22nd Annual Meeting of the National Association of Dental Faculties held at Buffalo, N. Y., July 27-28, 1905, resulted in the election of the following officers and committees: President, J. H. Kennerly, 2645 Locust St., St. Louis, Mo.; vice-president, J. I. Hart, New York; secretary, George Edwin Hunt, 131 E. Ohio St., Indianapolis; treasurer, H. R. Jewett, Atlanta, Ga.; executive committee: D. J. McMillan, Kansas City; L. P. Bethel, Columbus, O.; J. B. Wilmot, Toronto; R. M. Sanger, East Orange, N. J.; H. B. Tileston, Louisville, Ky. Ad Interim Committee: S. H. Guilford, Philadelphia; M. C. Marshall, St. Louis; J. P. Gray, Nashville. Foreign relations committee: G. V. Black, Chicago; W. F. Litch, Philadelphia; D. R. Stubblefield, Nashville; William Carr, New York; J. D. Patterson, Kansas City. Forty-three of the fifty colleges holding membership, were represented by delegates and a most harmonious meeting was held. United States Consul, J. H. Wormen, Munich, Germany, was present at one session and told what was being done to rehabilitate the American degree in that country. Announcement was also made that the United States Government had recognized the National Association of Dental Faculties in its act regulating the practice of dentistry in the Philippine Islands.

GEORGE E. HUNT, *Secretary.*

Dentists For The Navy.—One of the bills to be presented to the next congress will provide for a corps of dental surgeons to be added

to the United States navy. The bill will duplicate for the navy what has already been done for the army. It has received the endorsement of Secretary Moody and the naval committee of the House.

Such provision is even more necessary for the navy than the army.

While soldiers, except at isolated posts, have opportunity to secure the services of dentists, theseamen have practically none. They are afloat for months at a time. When in home port they are too busy enjoying themselves when not too busy at their work. Naval officers testify that a surprising number who reach the training ships from the recruiting stations are in need of dental treatment. Closer connections, furthermore, has come to be understood between diseases of the teeth and diseases of the body. Mishap to the teeth on shipboard supplies another reason.

Everybody knows from his own experience the disposition to neglect the teeth when the dentist is just around the corner. The neglect must be vastly increased when the dentist is difficult or impossible to find. It may be suggested, too, that bad teeth have something to do with the appalling desertion record. Perhaps no indirect thing will do more to render the sailor man content with his food and his life than the improvement of his teeth, who with sore teeth can be contented with anything anywhere?

The More Brains, the Less Teeth.—For the future it will be a very doubtful compliment to say of a lady (these things are usually feminine) that her teeth are perfect. Sir Oliver Lodge has not only been preaching to us that we are too careless over our teeth, but has told us that brains and teeth cannot exist together." The "more brains one has the less teeth one has—unless they are artificially provided." This is decidedly encouraging to those of us who have to go to the dentist—the more we go the more we advertise ourselves as being possessed of brains! In future a polite way of saying an unpleasant thing will be to say, "What a mouthful of teeth you have, to be sure!" From this point of view, too, what a magnificently ennobling profession dentistry becomes! Here we are all saying that Britishers must develop their brains, and with every tooth he draws the dentist must feel that he is carrying on this patriotic work!

The theme suggests (as indeed it is worthy of) a verse:

Belinda dear, once on a time,
My best beloved of pretty girls,
It was my wont to turn a rhyme
And say your mouth was full of pearls.

In blissful ignorance of yore
I thought my compliment but truthful;
But knowledge grows from more to more,
Only the brainless now are toothful.

So take a cab, Belinda dear,
Hie where the dentistry is painless,
Have out the pearls which now, I fear,
Are merely teeth to prove you brainless.

American Dentists.—Measures recently taken in France and Germany virtually make an application of the protective tariff principle for the benefit of home-trained dentists in competition with those educated in America. Action such as this calls attention to a profession in which this country, by acknowledgement of the world at large, has far outstripped the older nations. Although China invented the toothbrush, ancient Egypt the first gold fillings and France many centuries later the first porcelain artificial teeth, it is a curious fact that the American dentist is the one who is nowadays practically omnipresent the world over. At the time of the American Revolution, France, which is now so seriously disturbed over the position attained among her people by practitioners from this side of the water, led the world in dentistry, and the most expert dentists who treated the teeth of our forefathers were probably Frenchmen who came over with Rochambeau. It is worthy of note that the Father of His Country chose an American dentist—one Mr. Greenwood of New York, whose father had practiced dentistry in Boston and whose grandfather was one of the early Harvard College professors—to make him false teeth that few Americans realize nowadays were one of the great commander's most prized possessions.

Even before the Revolution, however, Americans were turning their attention to dentistry, the profession being followed by one of the most famous figures in American history—Paul Revere, who made the famous ride to Concord on the 19th of April, 1775. The following announcement may still be read in the old Boston Gazette of Dec. 19, 1768:

WHEREAS, many persons are so unfortunate as to lose their Fore-Teeth by accident, and otherways, to their great detriment, not only in Looks, but in speaking, both in public and Private:—This is to inform all Such, that they may have them replaced with artificial ones, that looks as well as the Natural & answers the End of Speaking to all intents, by Paul Revere, Goldsmith, near the Head of Dr. Clarke's Wharf, Boston. All Persons who have had false teeth fixt by Mr. John Baker, Surgeon-Dentist, and they have got loose (as they will in Time) may have them fastened by the above, who learnt the Method of fixing them from Mr. Baker.

Since the time of Paul Revere American dentists, not content with caring only for the teeth of their fellow countrymen, have gone abroad and are now found in all parts of the globe. The graduate registry of one dental school alone shows practitioners in nearly every important European center, to say nothing of such more distant places as Cape Colony, New Zealand, Australia, South Africa, Japan and South America. The professor of dentistry in the University of Japan is a graduate of a Boston dental college, who came to this country as a poor young man and won his professional degree while working hard to earn his daily living. The crowned heads of Europe, to use the expression made famous by the late P. T. Barnum, are often in the hands of American dentists. Nearly everybody has read the story of Dr. Thomas W. Evans, who has gone down in history as the rescuer of the Empress Eugenie at the time of the French commune. Evans was long the dentist of Napoleon III and was a prominent figure in Paris of the second empire. Another American dentist, Dr. A. H. Sylvester, has been the recipient of honors from the present German Emperor, who made him a Royal Prussian Councillor. These men, Americans by birth, as well as by education, belonged, one might say, to the class of dentist adventurers, hundreds of whom have left home to win their spurs elsewhere and have

succeeded in doing it, although their individual histories are never likely to be written.


One of the most amusing stories of the popularity in foreign parts of an American-trained dentist is that of Dr Wagschall, who came over here from Vienna to learn dentistry and has since acquired fame as the dentist who is suing a brother of the Shah of Persia. Dr. Wagschall, eight or ten years ago, arrived in Teheran, the capital of Persia, and had hardly begun to practice when a royal courtier rushed into his office with the news that the Shah's brother was suffering from a toothache. The dentist hurried to the palace, but there he found that the hostility of the courtiers toward such an innovation as an American dentist—they pronounced it "American humbug" had already persuaded the monarch to put himself in the hands of a local practitioner, none other than the court barber. Wagschall returned to his office and the august patient stretched himself on the floor of his palace with the barber kneeling over him armed with determination and a pair of tweezers. There is reputed to have been one twist of the tweezers, a good, loud, royal yell from the patient, a court barber being hurried off to prison, and a court messenger again speeding in search of the exponent of Western civilization in dentistry. This time the opposition of the courtier was useless, the tooth was pulled under more civilized condition and Dr. Wagschall became dentist to the Shah's brother. The royal teeth had been long neglected and it was necessary to make a set of new ones, with which the patient was so pleased that he decided then and there to pension the operator; and at last accounts Dr. Wagschall was suing his patient for over \$3,000 worth of unpaid pension. Dr. Wagschall's experience, however, is hardly so tempting to the American student-dentist as that of many another American dentist now practicing in Europe whose name has never come so prominently before the public.

The sign "American Dentistry" which greets the traveler abroad in practically every known language, does not necessarily mean that the man who displays it is a native-born American. Large numbers of foreigners come to this country every year to study dentistry.

Recent Patents of Interest to Dentists.—

- 796120—Dental matrix, Theodore Green, Ridgeway, Ill.
- 797423—Toothpick, Robert R. Freeman, Nashville, Tenn.
- 797312—Artificial tooth, Henry P. Osborn, Bayonne, N. J.
- 796980—Tooth-brush, Robert D. Andrews, Brookline, Mass.
- 797515—Metallic backed tooth, Wm. G. Hughes, Pittsburg, Pa.
- 795754—Dentists' tooth-clamp, Robert E. Barton, St. Louis, Mo.
- 795270—Dental obtunder, Charlie A. Damon, Fenton, Michigan.
- 796394—Toothpick machine, Howard E. Barlow, Providence, R. I.
- 797270—Tool for dental operations, Rudolph Dreher, Idar, Germany.
- 797106—Hand-operated dental tool, Charles P. Gray, Cincinnati, O.
- 795494—Cutter for toothpick machines, Harry A. Dorr, Providence, R. I.
- 795374—Head-rest for barbers' chairs, Robert Stitts, Dawson, N. Mex. Ter.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.



REGULAR CONTRIBUTIONS

FIXED AND REMOVABLE BRIDGE-WORK.*

BY F. A. PEESO, D. D. S., PHILADELPHIA, PENNSYLVANIA.

Having been invited to read a paper before the Ohio State Dental Society, it gives me great pleasure to comply and I shall endeavor in a brief manner to call your attention to the merits and demerits of both fixed and removable bridge-work and to point out a few of the factors which make to the success or failure of this work.

Since bridge-work first became a recognized factor in the practice of dentistry, one of the greatest objections to the employment of this form of denture has been its irremovable character, and consequently the inability to properly cleanse and sterilize it. The character of the work as it first appeared was not such as to recommend it to a person of an artistic or of a cleanly nature. Bridges were made and put together in such a manner that it was impossible to thoroughly cleanse them, consequently the mouth would become so foul and the breath so fetid as to be almost unbearable, not only to the patients themselves, but also to any one with whom they might come in contact. This state of affairs continued for some years, and unfortunately there are many instances which prove that such conditions still exist. There are probably few of the dentists present who have not come across cases of this kind. It is not an uncommon thing to hear a dentist make a remark similar to the following in speaking of some patient: "I could tell that he had bridge-work in his mouth as soon as he entered the door, or even before I saw him." This is no exaggeration. The odor coming from a mouth containing improperly constructed

*Read before the Ohio State Dental Society, December, 1904.

bridges, and at times where they receive the best of care, is peculiar to this kind of work. It can be detected instantly and cannot be disguised.

That such conditions obtain is not always the fault of the dentist, but is often largely due to the carelessness or uncleanness of the patient. At other times while the dentist may have honestly endeavored to the best of his understanding and ability, to render the work as perfect as possible, his conception of the work and its construction may have been faulty. There are many parts which cannot be reached by the brush and these afford places of lodgment for food which becomes decomposed. This decomposition of foodstuffs, the consequent foulness of the mouth and the disagreeable odor arising from such conditions, are perhaps not the worst features of cases of this kind.

The irritation to the soft tissues caused by ill-fitting bridges and decomposed foreign matter, may, and in fact frequently does bring about serious pathological conditions. These disturbances may not be merely local in character, but the general health of the patient may be seriously impaired by the poison absorbed into the system, causing a general toxemia. It is not unlikely that in some instances the death of the patient could be traced directly to this cause. It is certain that blood poisoning might ensue where the work has been carelessly done, leaving rough and sharp portion in places where they may cause an abrasion of the soft tissues. Where the disturbances are merely local, if not attended to in time, they may result not only in the loss of the teeth serving as abutments, but some of the adjacent teeth may become involved as well. It is not an infrequent thing to find an hypertrophied condition of the gum which, in some instances, almost entirely conceals the bridge. For many years a large number of the best dentists condemned bridge-work as being impracticable, and from the character of the greater part of the work done at that time, they were justified in so doing, but in the course of time it became evident that it was not bridge-work itself that was at fault, but the manner in which it was done, and to-day there are few dentists who do not recognize its merits and advocate its use.

The trouble is that there is less time and attention given to the study of this branch of dentistry than to any other. In our dental colleges comparatively little time is occupied with this

work, while in a way it is really the most important branch taught in the dental profession. This may seem to be a very broad assertion, but it is a fact nevertheless. Having made a careful study of this subject for years and having had excellent opportunities for seeing a great deal of this work, I think that I am safe in saying that there is more harm than good done by bridge-work and that fully ninety per cent. of the work which is placed in the mouth is a detriment, rather than a benefit to the patient and should never have been put in. In some of these cases the prosthetic work may have been done admirably, but little or no attention has been given to that part of the work on which the success or failure of bridge-work entirely depends, and that is the position, condition and preparation of the abutments which are to serve as supports for the bridge-work. This is the vital point, whether the work be fixed or removable, yet less intelligent care is given to it than to any other part of the work. Much has been written and said on the different ways of making bridges, the striking up of the cusps, of the different styles of abutments, etc., but next to nothing on the preparation of the mouth for the reception of the work, while it is this particular part which is so much needed.

It is not the purpose of this paper to go into the details of tooth and root preparation, but the writer wishes to emphasize the fact that this must be the first consideration in all crown and bridge operations, and if this is not the case, it is impossible that the work will be a permanent success.

As stated at the beginning, from the earliest introduction of bridge-work, the great objection to its use has been the inability to properly cleanse and sterilize it and there has been a constant endeavor on the part of earnest workers along this line to overcome this difficulty. While the improvements in the methods of construction and perfection of finish have rendered these efforts partially successful in certain fixed pieces, the only way in which the difficulty has been entirely overcome has been through the advent of removable bridge-work.

FIXED BRIDGE-WORK.

Referring again to previous statements, the success of either fixed or removable bridge-work depends primarily upon the proper preparation of the teeth and roots which are to serve as

abutments. If this has been properly done it is up to the prosthetist to complete the work in a manner which will render the piece of the greatest possible service and comfort to the patient, and to comply as far as possible with the hygienic requirements of the case.

Fixed bridge-work, from its very nature, must be more or less uncleanly. Even greater care should be taken in its construction than in constructing a removable piece and it should be so made that the bristles of the brush can freely reach every part of it. The so-called self-cleansing bridges, where no facings are used are anything but self-cleansing. To be sure, they can be kept free of any large particles of foodstuffs, but in nine cases out of ten, the bristles of the brush will never touch the under side of the cusp. If this surface be scraped with an instrument it will be found to be covered with a thick deposit which has been accumulating from the time the bridge was first set. In order to reach this point in a bridge in the lower jaw, the brush would have to be inverted. If held in the same position as ordinarily held in brushing the teeth the bristles are forced down and away from the surface which they are intended to clean and will only come in contact with the edges of the cusps. In all of these cases it is much better to use a facing and carry the gold well down, sloping it from the lingual side of the cusp to the lower edge of the facing. When it is made in this way the brush will easily reach the lingual, or under surface of the body of the bridge and if vigorously used will keep this surface clean and polished.

Another thing which should be avoided is the setting of the facings in close contact with the gum. It is a mistake to scrape the model so that the facings will sink into the soft tissues. I know that there are many who will combat this statement, but it is very frequently the cause, not only of great discomfort to the patient, but of danger as well. In almost every case where this is done, there is more or less irritation and inflammation of the parts that will often necessitate the removal of the bridge, which, if it has been well cemented, can only be done by a considerable mutilation of the piece. Then, too, where the facings press heavily into the gum it is impossible to thoroughly cleanse them at this point of contact.

In fixed work the facings should never press on the soft tissues, but should stand entirely away from them or touch them

but lightly, so that the space can be freely flushed and the bristles of the brush can pass easily underneath them. If the facings are set in this way, they will never cause any irritation, provided they have been properly finished and polished. Every part of the bridge should be perfectly smooth and highly polished. The tips of the facings which have been ground to a sharp edge in shaping them to the gum surface should be nicely rounded and polished. There must be no unnecessary projections and no spaces which can serve as a lodging place for foreign matter. The whole bridge should be so constructed as to render every part of it accessible to the bristles of the brush in cleansing.

A saddle should never be employed in fixed bridge-work. If a saddle be used, unless it be pressed very tightly into the gum tissue, it will give lodgement to particles of foodstuffs which cannot be dislodged and which will cause trouble sooner or later. On the other hand, if it is pressed tightly into the soft tissues, it is impossible that it should not cause more or less inflammation which may, and probably will necessitate the removal of the bridge. It is a case of taking unnecessary chances, and this should not be done if it can possibly be avoided, where the health and comfort of our patients are at stake, and more especially if the patient comes from a distance where it is impossible to make frequent visits to the dentist. As to thoroughly sterilizing a fixed bridge, it is entirely out of the question, as any solution taken into the mouth which would be strong enough to disinfect the piece thoroughly would be sure to have an injurious effect on the mucous membrane.

Another objection to fixed bridge-work is the difficulty of repairing it in case of accident. In many of the accidents which may happen to bridges, or if it is desirable to extend it to take in more teeth it is necessary to remove the piece in order to make the required changes or repairs. In extensive bridges where there are several abutments, if any one of them becomes loosened, in order to recement it it would be necessary to cut and loosen all of the abutment caps before the bridge could be removed and this would necessitate extensive repairs. In many cases one of the abutments may be entirely ruined before it is discovered that there is anything the matter with it.

Another objection to fixed bridge-work is the difficulty of treating an adjoining tooth. Any one who has undertaken to

insert a gold filling in the surface of a tooth approximating the abutment of a fixed bridge, will understand how difficult, and at times almost impossible it is to do it. It is impossible to put the rubber dam over a fixed bridge. In order to insert a filling here, an exaggerated separation is needed, and this, at times, it is impossible to get. Amalgam fillings in these cases are not to be thought of, and it is a question of using cement or gutta-percha, or of removing the bridge.

These are a few of the objections to fixed bridge-work. If we had nothing better to offer and the work were done in the best possible manner it would certainly be a great boon to humanity, but our patients are worthy of our best services and it is their due that we give them something that is much better than fixed bridge-work if we can, and this can be done by making the work removable.

REMOVABLE BRIDGE-WORK.

With the advent of removable bridges, the possibilities of bridge-work have been greatly increased. In many cases where it would be inexpedient to put in a fixed bridge, a perfectly satisfactory and lasting removable bridge can be placed. This is especially true of the lower mouth where all of the molars have been lost. All of these teeth can be restored by the use of removable extension saddles, but this could not be thought of if the piece were to be permanently fixed.

Aside from the increased possibilities which removable work presents, there are many points of superiority of a removable bridge over a fixed one. One of the most important features to be considered is the hygienic standpoint. Where a removable piece is worn it can be taken from the mouth in a moment and sterilized by boiling if desired, or it can be cleansed in acid or anything which the patient wishes to use. The inner abutments are then easy of access, and being perfectly smooth on all sides can be cleansed with very little trouble and the bridge replaced. It must be conceded that this is a most important factor in favor of removable bridge-work.

Another point is the ease with which a removable piece can be repaired in case of accident. It can be taken from the mouth and the necessary repairs made in the laboratory without the slightest inconvenience to the patient. In extensive cases where

there are several abutments, should one of them become loose it will be instantly detected and can be readily recemented. In case it becomes necessary to treat or fill an adjoining tooth the bridge can be removed, the rubber dam put on over the abutments, and there will be ample separation for any operation necessary.

In a removable bridge the model can be scraped and the facings set much closer to the gum than would be safe if it were a fixed piece. Should there be signs of irritation after the bridge has been cemented, it can be removed and the facings shortened as much as is necessary by grinding, after which the ground surfaces are polished and the bridge replaced.

The value of removable bridge-work depends entirely upon the accuracy with which the work is done. The fittings must be as nearly perfect as it is possible to make them, or the work cannot be satisfactory. This is not the least important point in favor of removable bridge-work, as the care and skill required in its construction will have a tendency to make a man much more skillful in the working of metals and in all fine mechanical work. In fact, the education which the hand receives will tend to make him a better dentist, in operations in the mouth as well as out of it.

It is contended by some that the constant taking off and putting on of the bridge will cause the abutments to wear and become loose. This is not the case if the work has been done accurately in the first place. If a telescope crown be properly made and of a rigid material, there will be practically no wear on it and the bridge should be just as firm after years of use as when first put in the mouth. The fluids of the mouth form a coating which prevents the actual contact of the metals of the outer and inner caps, let them fit ever so closely. If the material of which the caps are made be so soft as to permit of their stretching in the slightest degree, allowing some movement of the bridge on the abutments, it would impair its usefulness and render the piece worthless in a comparatively short time.

It cannot be denied that a well made fixed bridge is much to be preferred and would give much better satisfaction than a poorly made removable bridge, but everything being considered removable bridge-work is far superior to fixed work, and there

is no question that it will eventually entirely supercede it and fixed bridge-work will become a thing of the past.

As stated at the beginning of this paper, crown and bridge-work is a most interesting and important study and more time and attention should be given to it. Great advances have been made in it in the last few years, but much more remains to be done, and it is to be hoped that the next few years will see a wonderful improvement in this direction.

I have purposely made some very positive statements in this paper, with the idea of bringing out in the discussion some points that are of great interest to us all. If I have succeeded in doing this, I shall feel well repaid for my visit to the Ohio State Dental Society.

DISCUSSION.

DR. W. O. HULICK: I certainly have appreciated and enjoyed the most excellent paper that has been presented in regard to the movable bridge-work.

The subject of removable bridge-work has been one that I have been interested in on account of the hygienic condition, but up until the present time no work of that kind has ever been presented to my notice that has been on a scientific principle that would warrant me to take it up and try to work it out as a specialist. To my mind, Doctor Peeso's work and methods are worked out on a line as I have never seen it before, and the scientific principles used by him would enable us, I am quite sure, to reach results as no other work that I have ever noticed would do.

I have seen a few pieces of work, but the per cent. of that class of work as compared to the fixed work has been so small that the success has not been claimed successful in the least. The hygienic conditions of fixed work certainly are not all that we would expect them to be; and I can only comment on that and say that I feel that at times we do not adopt methods that would be observing the golden rule. I read a little article a few days ago that said the dentist should have his tooth filled every morning before he took up his instruments to work on others, and I sometimes believe that if a few of us would have a replacement in our methods such as we come across every day of the week we would strive to do the work on a little more of a scientific basis.

I had a case not more than six months ago of a condition that I think was one of the most aggravated cases I have ever seen, in line with the pathological conditions as the result of one cantilever bridge extending from a molar to a bicuspid, and in this case the tissues were damaged to such an extent that the alveolar process was bared from the pressing of the porcelain facing, and necrosis was almost the result, but not abso-

lute. There appeared to be, and I think that we were only saved from serious trouble by the removal of the piece, but there have been conditions arising from that that may extend over a considerable length of time, perhaps years, because at this time it is six months from that date and more, and the conditions, while improved, are not entirely satisfactory.

Comparing the fixed bridges with removable work, certainly, as I spoke a while ago, we are in no position to compare them, unfortunately, because of the fact that there are several hundred fixed bridges placed in the mouth to perhaps one of the removable, and that many I think discard the old method entirely, not being able to take up the other line of work. And until we have adopted a method on scientific principles as this one presented, many of us will have to continue to insert fixed bridges for many years to come. I hope the time will soon come when we can discard the old method, because it is certainly not scientific, and not satisfactory in every way, but we will have to do with them for a while. However, a thoroughly well constructed bridge, as many I have seen, undoubtedly are very satisfactory, and are serviceable for a great many years, and while I believe that the hygienic conditions are not those which we desire, I believe that they are not very greatly exaggerated over the conditions of that same mouth.

So I am thoroughly in favor, and am an advocate of bridge-work constructed under scientific and mechanical principles. As to fixed bridges, I have seen a few and removed them in time. If they had been delayed any length of time there would have been complications that would have been hard to combat, and for that reason I have not taken up that line of work, but have denounced it on every occasion.

As to the adjustment of the bridge, there was one point I wished to bring out, in the adjustment of a fixed piece. It has never been my practice or my idea to adjust a bridge permanently on the day of finishing. Certainly as to the preparation of abutments, etc., I do not wish to take that up. But as to the final adjustment or fixing with cement or gutta-percha, I never attempt to do anything of that kind on the day of the finishing of the piece. I place it in position and have it worn one day at a time, see my patient frequently, and trim those parts which irritate or where there is great pressure, and then at subsequent times, perhaps three or four times, or half a dozen times, I do this until I find conditions such that it will warrant the fixing of the bridge permanently. I do this on every occasion. For that reason I am not advocating the removable porcelain facings.

I wish to thank the essayist for the most excellent paper, and say to him that it has been one of the treats of the meeting, and I have been more than repaid for coming, and shall return to my office to take up this line of work with the energy that I have never taken up bridge-work before, because of the fact that he has presented some methods here that I have so far never dreamed of. I have wondered, and have often wished to see some removable bridge-work that was constructed on scientific principles, and if you have the opportunity of examining his work, which I know you will have, you will agree with me that it is so far the only removable bridge-

work that has come before your notice that was scientific and worth while to look into.

DR. L. E. CUSTER: I wish first to thank Doctor Peeso for the excellent paper and the manner in which he has presented it, and I rise to say that in my mind the most serious objection to bridge-work is the fact that it is removable, and the abutments on which it is placed, and upon which it is dependent for its life, are day by day irritated by the fact that the bridge is removable. If this bridge were put in there firm, then those teeth which we might loosen by the constant taking off and putting on of the bridge, they would certainly have a much longer life. To illustrate, in our city we have many soldiers who are sure to get their jag, and it is a fact that one of them going down street by himself is much less liable to get run in than when two of them attempt it together.

DR. W. A. SIDDALL: I was a student of Doctor Peeso's at the University of Pennsylvania some fourteen years ago, and I know what he taught and did practically in the line of fixed bridge-work. This removable bridge-work has come up since my student days. It seems to me that the discussion of this paper and what we see in our offices proves that we know very little about this subject. I feel like endorsing Doctor Peeso's paper and his word, knowing as I do what his fixed bridge-work was. I do not believe that he would have left that for anything else unless it was better, for his fixed bridge-work was eminently satisfactory. We can take Doctor Peeso's word, and if he says that this work is adapted to practical cases I know that he at least can make good.

DR. BUTLER: I have only a few words to say, and perhaps it is not necessary, because Doctor Peeso is not here to have bouquets thrown at him. Doctor Peeso has given us in his paper some very valuable instructions, and the exhibit that he has been able to make with the specimens of his work is a very valuable lesson to one who has a conception of what constitutes fine mechanics.

I just want to differ with Doctor Custer a little as he did with the essayist. He says that these abutments, by the taking off and putting on of the movable bridge, prove to be detrimental to the life to the teeth remaining. I think Doctor Custer's teeth and those of the rest of us who are fortunate enough to have any are not one continuous block, but they are set in the jaw as individuals. And the very fact that Doctor Peeso insists upon the accurate manner in which this work shall be constructed I think shows very clearly that he has that fact thoroughly before him; that the teeth, from which the comfort and the life and usefulness of this bridge consists in putting it on so that the teeth are not put under any irregular strain, and if you will observe the specimens that he has here, the accuracy with which those caps slipped down over the receiving dummies, it will demonstrate how thoroughly he recognizes the importance of making a close mechanical lines in order to have this work as he claims so successful in its comfort and durability. The adjustment of a telescope must be, as you will notice in the setting of these tubes, just as close as they can be to move, so there is no oscillation one way or the

other if we want to have an instrument do the work which it is constructed for. And he has specimens there that I doubt not have been taken off and put on thousands of times, and yet they go on very smooth and tight to-day. There are a few, and I am not overstating it, that have the ability to put together work with these fine mechanical adjustments which are displayed in the specimens that Doctor Peeso has to present to us. I would not like to say that I could manage that work the first time, or perhaps the first ten times, I tried. I might come pretty close to it, but it requires considerable practice to do the work anything like as nicely as our friend here is able to do, so that whoever attempts to make these bridges, whether they be fixed or removable, had better learn how to do it before attempting to serve everybody who comes along and wants a bridge.

MALDEVELOPMENT INCIDENT TO INFANT DENTITION*

BY S. D. RUGGLES, D. D. S., PORTSMOUTH, OHIO.

A few years ago one of the Chicago post-graduate schools issued a photographic chart of the upper and lower maxillary bones, showing the development of teeth from birth to maturity.

Many of you are familiar with these illustrations, and to those who are not I shall say, secure one, and make the wonderful facts a part of the knowledge so essential for your success.

This chart is framed and placed behind the door of my operating room, a place not in the least conspicuous, but very convenient for the purpose of demonstrating to fond mothers conditions with which they should be more familiar.

Many of these illustrations you will see upon the screen to-night, malformations being shown in connection with normal development.

The conditions of embryonic development will have little consideration, since it is a rare exception that the process is disturbed. Once in a great while the maldevelopment of a permanent first molar can be traced to this period, for it is the only permanent tooth forming at this time. I have yet to see the first case of deciduous dentition showing the marks of

*Read before the Ohio State Dental Society, December, 1904.

any disturbance. In all probability the microscopic structure may be modified, which would account to some extent for the apparent melting away of their crowns long before the usual time.

We all know that the teeth of man have not the faculty of repairing themselves, as have the teeth of rodents. The hair follicle, during a severe fever, will cease to do its work on account of nutritional disturbances. It is not injured or destroyed, but simply retarded temporarily in the performance of its functions; hence a constriction of the hair occurs, similar to the groove on the finger nail that is due to injury. Later this hair breaks and produces the condition so familiar.

We shall now consider the effect of such conditions upon the development of teeth. In the new-born babe there are in the process of formation twenty-four teeth. Shortly after birth, the incisors begin to lay down their coat of mail, called enamel, the lateral incisors following in a few months. Now it is readily understood how some functional disturbance can prevent the process of growth, and cause the lines, grooves, or pits to be formed, as will be shown in the different illustrations.

The degree of deformity will depend upon the extent or period of interruption. In many cases, the incisors only will show a slight groove or pit, traversing the labial surface from mesial to distal. The position of this line from the incisal edge will indicate with considerable accuracy the time at which the disturbance occurred. Should the adjoining lateral be in the process of development, it may or may not be marked, and if so, in a relatively lower position. Occasionally a case is seen in which all the anterior teeth are marked, and if your knowledge of crown development is accurate you can say with reasonable certainty the trouble occurred between the second and third year, or later, if the markings are high. The cuspid does not develop during the first year.

Bicuspid are not often marked, although I have seen one or two cases. Their late development almost insures immunity. Second and third molars are not affected to my knowledge.

Through the courtesy of Dr. G. V. Black, I am enabled to show some very typical cases, collected during his long practice. The drawings were made by the Doctor himself.

Dr. F. B. Noyes, the histologist of the Northwestern University, has prepared these slides for me, and I wish to thank both of these gentlemen for their kind assistance. Many cases are from my own practice, and some were given me by Doctor Price of Cleveland.

Fig. 1 illustrates a typical Hutchinson tooth. Mr. Hutchinson was a specialist in venereal diseases, and insisted that this deformity was due to inherited syphilis. The middle lobe of the central is the one injured, and



Fig. 1.



Fig. 2.

since this tooth does not develop until after birth, it is quite evident that the condition is not congenital. The mesial and the distal angles are much rounded, giving the tooth an unusual shape. The lateral incisors are not injured. The first molars are sometimes deformed, showing numerous little spines or cusps, indicating many centers of calcification. Doctor Black has very appropriately applied the term atrophy to these conditions. It is, strictly speaking, the failure to develop because of a lack of nutrition.



Fig. 3.



Fig. 4.

Fig. 2 shows a very common form of atrophy. Centrals and laterals both suffered in this case. The groove shows no pits. By grinding away the incisal edge that is faulty, this case could be improved very much. Often the well-defined groove is supplemented by a row of pits, varying in size and depth.

Fig. 3 shows an unusually well-marked specimen; the high position of the marks on the central indicates the late period at which the disturbance occurred, between three and four

years. The cuspids were tardy in their development. The markings in a normal case would have been almost midway between the cusp and gingiva.

No. 4 shows an unusual case; the incisal edges of the centrals are normal, and a deep groove encircles the crown about midway, and in this you see the round bottom pits. The lateral incisors were erupted two years after the centrals and present a peculiar deformity, known in common vernacular as the "inverted finger-nail type." You can readily see where the name comes from. The molars were lost from atrophy and the one bicuspid present showed a deep mark encircling the buccal cusp.

The next slide also shows some extreme cases (No. 5). I wish particularly that you note the full development of the



Fig. 5.

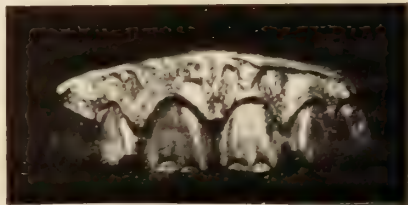


Fig. 6.

roots. The question naturally arises, what to do with a case like this. One thing is certain: extraction is not indicated. The roots of such teeth are normal, at least so far as I have been able to learn. Restore by filling, if possible, or by the use of a porcelain crown. Bear in mind that a root should be fully developed before this crowning process is undertaken. The later this is done, the better.

ETIOLOGY.

In considering the cause of this deformity, I shall show some well authenticated cases from my own practice. In every case, regardless of the disease or condition at the time, malnutrition was the cause.

Only last August I made an appliance to cover an opening into the nasal cavity—the result of syphilis, and I am positive there was no mark of the Hutchinson type. It is most difficult

at times to corroborate your diagnosis in these cases, but the family history bears out my statement. Had your committee asked for this paper sooner, you might have seen the case on the screen tonight.

In the next illustration (No. 6) you will see a case that is the result of improper nourishment. The mother was anæmic and unable to nourish the child. Many artificial foods were tried, but the child was six months old before a suitable food was found. The remainder of the teeth are free from marks, showing that the needs of the system had been met. The first molars are normal.

The next case is the result of typhoid fever (No. 7). The patient was four years old and had enjoyed good health until this time. Shortly after his recovery the mother asked if the fever would affect the growth of his teeth. I told her that

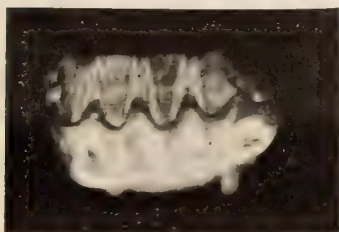


Fig. 7.

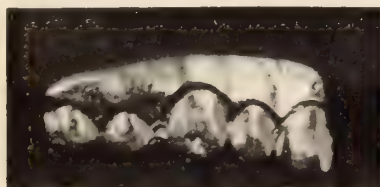


Fig. 8.

frequently they were marked, but was unable to say definitely. The markings are readily seen on the lower incisors, although the upper ones escaped entirely.

Slide No. 8 shows an interesting case. When the blemish on the cuspid was noticed, the cause was surmised, and I asked the father of the child if she had not been seriously ill when about two and a half years old, and he at once said "No." An explanation of why I asked followed, and the illness was recalled. At three and a half years of age she came near dying from the flux, the recovery being very slow. The upper first bicuspid on the left had a small mark on the buccal cusp.

In the next and last case (No. 9-A) you will see the results of artificial feeding. Malted milk, Mellin's Food, and others were tried and for the first ten or twelve months the child's life was despaired of. Do not infer that I speak ill of these preparations, for they have their place; however, this was not

it. The lower first permanent molars were beyond redemption when first seen, and it was with some difficulty that the upper ones were retained. The upper central incisors are worse than the slide indicates, for the pits have been kept filled with cement. The child is now twelve years old, and you can see that the premature loss of deciduous cuspids has allowed the bicuspid to move forward. All the teeth have been tardy about erupting. The bicuspid is not marked in the least.

The lower teeth of this patient are seen in the next slide (No. 9-B). It needs no explanation.

The mother attributed all this to a case of diphtheria at four years of age, but it is very evident that she is mistaken,

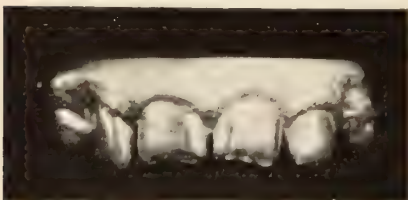


Fig. 9-A.

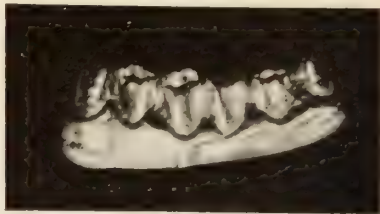


Fig. 9-B.

and unless all signs fail, the trouble occurred immediately after birth.

It cannot be said that a deformity was produced by this or that disease, for such is not always the case. Many times scarlet fever leaves no marks; the same may be said of typhoid, in some cases the imperfection can be traced to an accident, burn, etc. The disease commonly known as rickets produces like conditions on the long bones of the body, defective ossification, etc., due usually to improper feeding. It may exert some influence on the teeth also.

Often the cause is so obscure that it cannot be attributed to a single trouble, and on the other hand, where a deformity is looked for, none occurs.



ONE METHOD OF MAKING THE GOLD BICUSPID AND MOLAR CROWN.*

BY GEORGE E. BRATTEN, D. D. S., MANCHESTER, OHIO.

In constructing the gold bicuspid or molar crown, three things must always be kept in view, viz:

First: The band must fit the root closely, under the free margin of the gum, which can only be done by first removing all enamel and preparing the root so that its greatest circumference will be under the free margin of the gum; then take wire measurement for band.

Second: The crown must fill this space between the adjacent teeth.

Third: The crown must occlude perfectly with the opposing teeth. This third principle can only be accomplished by carving the cusp by hand in plaster of Paris.

My method of procedure is, after properly fitting and contouring the band, take bite and impression in good, hard-setting, modeling compound. When compound is thoroughly cooled, remove from mouth; in most cases, the band comes away with the impression; if not, remove band and place in position in impression; pour impression on the side of the band first, then mount on the articulator. When the plaster is thoroughly hardened, place in warm water to soften modeling compound, when the jaws of the articulator can be easily opened, and you have the models of both upper and lower jaws with band in position, same as it was in the mouth. Now oil the teeth on the model opposing the crown to prevent sticking.

You are now ready to make die and counter-die for swaging the cusp. Pour soft plaster in the band, allowing the plaster to come up over the band quite high. While the plaster is soft, close jaws of the articulator, and set away until the plaster is thoroughly hardened.

You are now ready to carve the cusp. With a sharp-pointed knife or lancet, trim away the plaster so as to expose the band all around (this allows for the thickness of gold of the cusp), then carve cusp to typical form. Opening and clos-

*Presented at the Ohio State Dental Society, December, 1904.

ing the jaws of the articulator from time to time, you can readily determine when you have a perfect occlusion. Now remove band and carved cusp from the articulator.

You are now ready to make the die and counter-die forswaging the cusp. Press the cusp down in mouldine until the impression of the band shows all around. Pour Melotte's metal for die, and make counter-die in the usual manner. Swage cusp and trim to line on die, made by the band of gold in mouldine impression, smooth on fine hone and you have a perfect joint for soldering.

I use Ney's 22k 30-gauge plate for both band and cusp. Solder the band with 22k Ney's gold solder, the cusp to band with 20k gold solder and fill the cusp with 18k Ney's gold solder, to give the required thickness for wear. If this manner of soldering is carried out, you will have as perfect a seamless gold crown as can be made.

APPLICATION OF HIGH-PRESSURE ANESTHESIA.*

BY C. G. MEYERS, D. D. S., CLEVELAND, OHIO.

Just a year ago this month, at a meeting of this society, a clinic was given on a new method of alleviating the pain incident to dental operations. The clinician was enthusiastic, as it was the culmination of years of study and work in this field and the onlookers seemed equally enthusiastic. The discoverer of this method did not call it "high-pressure anesthesia," but "perdentinal anesthesia," meaning anesthesia through the dentinal tubuli. It seems that the naming of his child was denied him. It may be that its paternity may also be questioned. A great deal of time and a great deal of money has been spent during the past year in trying to place this method before the dental profession in a proper light. To say that the results have been discouraging would be putting it mildly. In fact, the antagonism that has been encountered has been surprising. This has been called everything from the greatest discovery in dentistry in twenty-five years, to a "fake." More frequently the latter. Not one out of one hundred who have

*Read before the Northern Ohio Dental Association, Cleveland, Ohio, June, 1905.

tried this method have had the success he should. Why? Because they would not take the time or trouble to master one of the simplest operations imaginable. Why would they not take the time or trouble to master this? Because the average dentist is not looking for humanitarian methods. They may interest him for a time as a novelty, but only so long as they remain a novelty. It is not the dentist, but the patient, who is looking for pain-relieving methods. Hence the success of the so-called painless dentists.

It has fallen to the writer's lot to meet, personally, between four and five thousand dentists during the past year and correspond with probably as many more. The above conclusions are the result of a study of dentists. No method, no instrument, will accomplish its work without there is intelligence back of it. Please do not mistake, it is intelligence and not conceit or egotism that is needed. You may ask what is meant by this statement. One man, by close and long application, is enabled to accomplish certain results. Another, after one or two trials, is not able to get the same results. What is the consequence? No. 2 pronounces the plan impracticable and condemns it. In looking back through dentistry's history, has this not been true of every innovation? It is not confined to the method we have under consideration. The writer was requested by the committee on operative dentistry to prepare a paper, on the subject we have now under consideration, for the International Dental Congress held in St. Louis last year. He did so and submitted same to the committee. It was returned to him and it was ruled out of the meeting because an instrument he had devised for performing the operation was marked "patent applied for." Now, mind you, the paper was on the method, and was entitled "Peridental Anesthesia." It had nothing whatever to do with the instrument. The only dental journal to even give this method a passing notice was the *Stomatologist*, in which Doctor Guilford refers to the stand taken by the committee of the International Dental Congress and states that he saw more than a dozen patentees exhibiting their wares in the clinic room, and he adds, "Such are some of the inconsistencies one meets with in life."

We will let bygones be bygones and get down to the practical part of this business. The writer experimented for six years to find some means by which the nozzle of a powerful

force-feed syringe could be kept in contact with the dentine of a tooth, for he felt that if such means could be discovered and a cocaine solution could be forcibly injected against such dentine it would follow the tubuli to the pulp. The only aim at that time was to desensitize dentine. It was not until the tapered nozzle was thought of and tried that success was attained. Results were obtained in the very simplest manner possible. So the tapered point, fitting a small aperture drilled to the dentine, solved the problem. Any mechanic knows that the taper fit is the best known. It was thought at first that this aperture could be made through the decay in cavity to normal dentine and the application made in this way. It was found that this was impossible in the great majority of cases owing to the pain caused, as dentine is more sensitive under decay and because contents of the tubuli leading from the cavity to pulp canal have in most cases undergone a change that prevents the passage of a solution through tubuli regardless of the pressure exerted. Make pit for reception of tapered nozzle through the enamel, which is not sensitive until a sensitive point is reached, which means that normal or healthy dentine has been uncovered. In drilling this small aperture through enamel, which is quite brittle, small pieces may be chipped from edge of aperture or if the tapered nozzle is forced against such frail edges, it will cause a slight chipping or fracture. This will preclude the possibility of getting a tight joint, which is absolutely necessary. With a tapered or round bur larger than the aperture, it is necessary to slightly counter-sink the opening of the drill-hole and in this way smooth the edges of same. It is now possible to get absolute contact, without leakage, if the tapered nozzle is in proper shape. It is desirable that the pit be made on some plain surface of the tooth, as it is very difficult to form pit of proper shape if it is made in a groove or depression of tooth. For obtunding sensitive dentine, a small quantity of the cocaine solution is taken into cylinder or barrel of syringe, and tapered nozzle placed in drilled aperture. Test to see if there is a perfect joint between tooth and injecting instrument. When contact without leakage has been secured, continued pressure from one to one and one-half minutes will usually be sufficient to send a minute quantity of the obtunding solution through the tubuli onto the surface of the pulp and cause a surface anesthesia of same,

cutting off sensation from all parts of the tooth corresponding to the surface of pulp covered by cocaine solution. If pressure is continued long enough, the entire pulp will be surrounded by the obtunding solution.

We find that the obtunding effect is only obtained when pulp is reached by obtundent, and it is then so pronounced that applications of extreme heat and cold are not felt, as well as the excavation of cavity. For grinding teeth with living pulps, for crowning for those who are guilty of such practice, proceed the same as for excavating sensitive dentine. To remove a pulp not exposed, drill pit through enamel and apply obtundent until dentine is obtunded. Then continue pit until pulp is reached, which is indicated by a slight sensation to patient. Now apply obtundent again and very gently force obtunding solution into pulp cavity until no sensation is felt by patient from force of liquid against pulp. Stop immediately when this point is reached and pulp may be removed. If the pulp is exposed, flow cement over exposure and proceed exactly as if it was not exposed. We have found that the best obtundent is a five per cent. cocaine solution. A dentist, whom I was very anxious should meet with success, informed me that the results he was getting were very unsatisfactory. I asked him what percentage of cocaine he was using and he told me a saturated solution. "There is your trouble," I told him. "A saturated solution of cocaine is like syrup and it will be impossible to force such a thick fluid through such small tubuli." He has reported success since. The first question that is asked by those to whom this method is first shown is, "What effect will it have on the pulp?" The only answer I can give, and probably it will be the most satisfactory, is this: The method has been in use one year and a half in thousands of cases, by dentists all over this country and Europe. In my own experience I have noticed no ill effects and only one dentist, a gentleman from Cincinnati, has reported the death of two pulps, but he says that he does not know positively that death was due to this cause. It is estimated that about one-fiftieth part of a drop of the cocaine solution reaches the pulp, so we can hardly look for deleterious results from so small an amount. We also find that the anesthetic effect lasts from two to three hours, when tooth returns to its normal sensitive condition. As I have intimated above, clinical results are more

satisfactory than theoretical, and up to this time they have not been such as to condemn the method. I was warned by the committee, through whose courtesy I have prepared this paper, that I was not to mention instruments. I assure the committee that the warning was unnecessary, for it has not been particularly pleasing to me to be introduced at the different meetings I have attended as the man who invented the *squirt-gun*. I wish to emphasize a few points for those who wish to apply this method successfully.

First: See that the injector you are using does not leak, and,

Second: That the tapered point or nozzle is in good condition.

Third: See that aperture of drill-hole in tooth is perfectly smooth.

Fourth: Do not employ too strong cocaine solutions.

Fifth: Be sure drill-hole reaches the dentine. -

Sixth: In removing pulps, after pulp cavity has been reached, proceed gently and with great caution.

Seventh: If you do not succeed the first or second time, try again, as this method once mastered will prove a great boon to yourselves as well as to your patients.

Eighth: This method when mastered will enable one to get satisfactory results in every case.

DISCUSSION.

DR. S. MARSHALL WEAVER, CLEVELAND: The essayist has given you a very good generalized article on his new discovery. Mind you, I say *his*, for it has been through his efforts the dental profession has been given the stimulus to what I am positive will prove to be the greatest aid humanitarian dentistry has received in years. I wish to impress on this assembly that credit should be placed where it belongs as an incentive to others in the field of discovery. I hope no one in this meeting will have the nerve to get up and state that he used this same method years ago, for if he did, the more reason he should have for not exposing his selfishness.

Doctor Myers gave the profession an idea in the way of applying force which has been productive of several makes of instruments differing in

the laws of force, as the screw and the application of the different laws of levers, as illustrated in Figs. 1, 2 and 3.

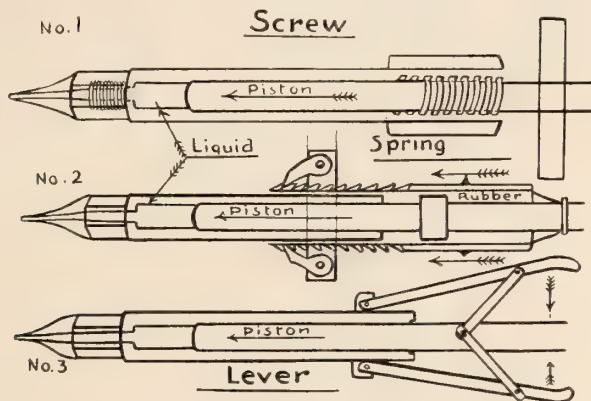
I wish to first group the different instruments into two classes and try to give advantages and disadvantages of each.

First: Live pressure.

Second: Dead pressure.

Live pressure instruments are those in which the pressure is kept up by constant force, as an ordinary hypodermic with hand pressure, or in those in which a compressible substance is brought under pressure back of the piston and held there by a mechanical means that is movable.

Dead pressure instruments are those in which the force is brought to bear direct on the liquid with no elastic substance intervening.



The advantages of the live pressure instruments over the dead pressure are as follows: The dead or positive pressure instrument brings the maximum pressure to bear on the liquid in such a way as to force the instrument away from the tooth, thus destroying contact (this is illustrated by Fig. 1), instead of the pressure coming on gradually as by the compression of a spring or a flexible rubber. The main object is not to get the maximum pressure at the start, but to bring the pressure up gradually. The screw is moved up gradually enough in the present makes, but as liquid is not compressible, it should be treated as a solid.

Now, according to the essayist, if one-fiftieth of one drop is approximately the amount of liquid forced through the tubula in the course of an operation, say from one to two minutes, you can readily see that it is an impossibility to turn a screw piston delicate enough to accommodate so small an amount, for all over this amount has to be forced out of the instrument into the mouth of the patient or out around the packing of the piston, for there is no spring-back to the piston after the limit is reached. Instead of having a rigid piston, you have one backed up with a spring or some flexible substance that will accommodate the excess liquid which has to be taken care of, to automatically feed it back as the tooth re-

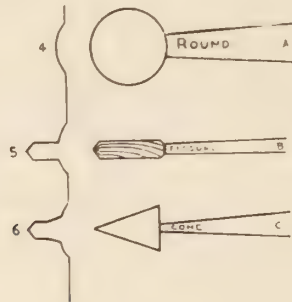
quires it, you will have what I believe from experience to be the ideal force. In other words, the live pressure force is the only one that will accomplish the desired results. Do not mistake me for saying the other instruments will not do the work, for they will—after a fashion—but what I want to give you is my idea of a perfect instrument, in regard to the kind of pressure.

The present makes have necessarily confined the number of hands for manipulation to two, and so make two classes.

First: One-handed.

Second: Two-handed.

In my opinion, the one-handed instrument is the better kind, for these reasons: It is absolutely necessary to hold the patient's jaw while operating, especially when operating in the lower, it is an impossibility for the patient himself, or your assistant, to do it satisfactorily, and again with both hands on the instrument and your patient's head free, there is more



liability to fracture the enamel. Also, the one-handed instrument is held much more steady, for you can generally rest your arm on the patient, and by so doing, if the patient moves, your arm moves also.

The style of handle should be so shaped as not to engage any hard parts of the hand, and not to cramp the muscles or keep them under steady strain, for if you do the muscles will rebel and start quivering, which will spoil the contact with the tooth.

To get perfect contact you must have two things; a perfect point and a perfect aperture in the tooth. This should be of the shape shown in Fig. 7. The point should have a true bevel. To insure this, the bevel must be put on after the nickel-plating, for the buffing of the nickel spoils the point. To accomplish this, a mandrel has been devised for use in the engine. The needle is screwed on the mandrel, and the engine running fast, revolves it on an Arkansas stone and any bevel desired can be obtained in half a minute. With a perfect point, half the battle is over. The aperture in the tooth is the next move.

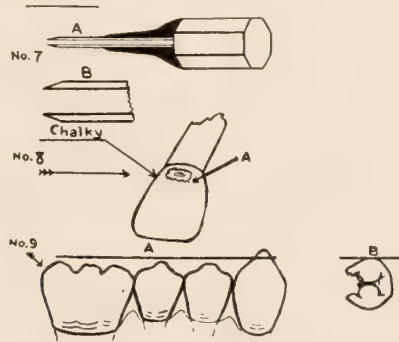
First: Make the pit inside the cavity, if conditions will permit it.

Second: In some place that will be cut away during the preparations of the cavity, as in Fig. 8.

Last of all, I feel perfectly justified in making a pit under the gingivæ on that portion farthest from the median line; but this only when the others are not advisable or possible as in Fig. 9.

My first step in making a pit is to take a No. 3 bur, round (revelation), placed against the tooth and then start the engine, allowing it to make a slight saucer-shaped depression (Fig. 4); then take the smallest fissure-bur, made with a drill-end, and place in first depression and start the engine, drilling until sensitive tissue is reached (Fig. 5). Then take a small cone-bur larger than the fissure-burs and operate the same as before, allowing it to cut away the slightest amount. This last step is to smooth off the rough margins which are easily seen under a magnifying glass. Fig. 6 illustrates this.

To make an exposure, apply instrument until tooth is anesthetized, so you may take the fissure-bur and drill in the bottom of pit without pain. Drill carefully until the pulp-chamber is reached. The patient will prob-



ably show signs of slight sensitiveness. Remove bur, apply instrument very carefully for only a short time, and then test with a smooth broach. If not enough, repeat the application. Now do not get lazy and want to do it all at once, for you are liable to force too much liquid through the apical end and cause trouble.

As for the solution, in my experience, the essayist has it about right in saying five per cent, although in my practice I mix a fresh solution every time by dropping some crystals or powdered cocaine into about ten drops of pure water.

Adrenalin chloride, in combination, does exactly what is not desired; it localizes the effect and causes a greater constriction of the minute blood vessels around the apical space and, by this prolonged collapsing of the blood vessels, renders more dangerous the life of the pulp.

It prolongs the anesthesia too long, as the straight cocaine lasts long enough for any operation.

I want the pulp anesthetized just while I am operating on sensitive tissue and no longer.

In my operations most of the teeth return to sensitiveness before patient leaves chair and in gold work I try and time it to last for polishing. You

can only do this by practice, taking tooth structure, position of cavity, age of patient, and other observations into consideration.

I can truthfully say I have never had one tooth give trouble from the use of any of the instruments and I have used some one of them ever since the first instrument was made, and would feel like giving up my profession if I was deprived of their use. I have exposed nerves accidentally, but this was not due to poor operating.

Teeth with pulp-stones are difficult to anesthetize, but stick to it and you will finally succeed.

I have met with two or three cases that have proved failures in my hands. The longer I worked, the more sensitive they became, and I have never been able to solve the mystery, as I had perfect contact and in one case was apparently in the pulp canal.

Keep clean with pipe-cleansers and don't get an instrument you cannot readily clean out every day, for the packing is bound to wear off slightly.

Cataphoresis proved highly satisfactory in my hands for several years, but it took many times longer to accomplish the results, and then not always successful. I have discarded it entirely and my appliance is for sale.

Gentlemen, this method has come to stay. What I have stated in this paper are deductions based on my own experience from constant use since the first instrument was made by Doctor Myers, and I stand ready to substantiate all and every statement made, in the interest of humanitarian dentistry.

DR. J. B. SAPP, CLEVELAND: It is now over a year since I began using local anesthesia by the high-pressure method, and in that time I have met with so much success that it has made me an enthusiast.

At first I had the usual failures to be expected—due to faulty manipulation—but by persistent efforts I overcame the difficulties, and now failures are the exception.

The effect on the tooth is just what is desired; simply to desensitize the tooth for a short time, one application being sufficient to enable you to excavate the decay—two applications will anesthetize the pulp so that it can be removed without pain.

You ask what becomes of the pulp after the tooth has been desensitized? I answer that in from one to three hours the pulp will have returned to its normal condition—this I have demonstrated repeatedly to my entire satisfaction.

The effect on the patient—well, it is only a professor of languages who is able to say enough in its praise without running out of words.

While I always prefer adjusting the rubber dam, it is not essential, as the application of the obtunding instrument can be made without it.

Since I began using high-pressure anesthesia, I have succeeded in perfecting an instrument overcoming the objectionable features, such as intense pressure against the tooth to secure contact; it is only necessary to place the point in the pit and with a slight pressure—hardly perceptible to the patient—while steadying the instrument with the left hand you turn the piston with the right until any degree of pressure is reached that

you may desire. This is a very desirable feature and well worthy of your consideration.

To those who have never tried high-pressure anesthesia, I would say, try it. Try it until you make a success and you will never do without it. You will accomplish better results with less fatigue to yourself and your patient.

You will be better satisfied with yourself for having adopted humanitarian methods; instead of calling you a butcher your patient will recommend you.

Do not wait for your patients to tell you that there is a new method for obtunding sensitive dentine, but let them learn it from you—they will have a better opinion of you. The time is not far distant when it will be demanded of you.

DR. G. W. WOODBURY, CLEVELAND: Robert Louis Stevenson said, "People are afraid of war and wounds and dentists, all with excellent reason." Therefore, anything that makes dental operations less painful is welcomed by the profession and the laity.

There is no doubt in my mind that the greatest problem before the dental surgeon today is the annihilation of pain in cavity preparation, and the method that comes nearest to solving the problem is high-pressure anesthesia.

Pain-preventing remedies are as numerous as breakfast foods, and like them many, in the language of ex-President Cleveland, have passed into innocuous desuetude. But there is always one that stands clamoring for recognition, and one just joining the "has beens:" cataphoresis must give way to high-pressure.

High-pressure anesthesia is superior to cataphoresis in every essential: ease of application, time, control, danger of infection, comfort to patient, and cost of apparatus. (I must refrain from discussing these points as, no doubt, I would be trespassing on the paper that is to follow). And the instrument best adapted, in my hands, to apply high-pressure is the instrument invented by the man who perfected the high-pressure anesthesia process, Dr. C. G. Myers, of Cleveland, and a member of this association.

The great Teacher has said: "A prophet hath honor save in his own country." And verily, a benefactor receives no recognition among his confreres. It is the history of the world that the men who have done most for humanity, who have worked year in and year out, night and day, giving time, wisdom, and money, have been paid by sneers and criticisms; men who have been bold enough to make innovations, like Bonville, Truman, Plagg, Haskell, Angle, and others, have been ridiculed, censured and condemned.

High-pressure anesthesia is the most important contribution to dentistry since the introduction of nitrous oxide gas by Dr. Horace Wells, a dentist of Hartford, Conn., in 1844.

If this is true, and many of you will grant that it is, then Dr. C. G. Myers is entitled to rank with the men who have done most to make dentistry humanitarian.

Many of the profession have looked upon the instrument of Doctor Myers as a plaything, and dubbed it a squirt-gun, when in reality it is one

of the most wonderful instruments ever presented to the profession, and the most perfect for what it is designed. But it is so simple, you say, any man could make one. Yes; that's true.

Do you remember the story told about Columbus, where he met at a dinner given in his honor, a number of men all jealous of his achievements? One of the men said to him: "Don't you think some other man could have found this new continent if you hadn't?"

Columbus passed him an egg and asked him to make it stand on end. When the first man failed he passed it to the next, and so on, until all had tried it. Then Columbus took the egg, broke the end a little, and lo! it stood alone.

"Any one could do that," they cried.

"Yes," replied Columbus, "after I have shown you how. Any man can find the new world after I have shown the way."

If Doctor Myers had designed an instrument as complicated as a cataphoric outfit or as intricate as the mechanism of an automobile, the profession would have risen with generous applause and called him a great man. But because it is so simple, the dentists sneer at it and call it a squirt-gun! The simplicity of the instrument, gentlemen, makes it the greater triumph.

While there are varying degrees of skill and intelligence, prudence and virtue, among the members of the dental profession, the average character is very high. But if we are to sustain the honor and dignity of our calling, and not be dubbed an association of prigs or a company of jealous bickerers, we must do what we can to retain the respect of the people. We must do justly, love mercy, and walk humbly.

There is an individual conscience, a civic conscience, and I am sure there is a professional conscience. Mayor Weaver of Philadelphia quickened the civic conscience. Let us be quickened.

I have taken upon myself the whole responsibility of presenting this matter, because I believe an injustice has been done one of the members of this association. And if there is to be any justice meted out or wrong righted, let it begin at home.

This society ought to be justly proud of having a member who could work out this problem.

Resolved: That the president of this society appoint a committee of three (3) to investigate the claim of Dr. C. G. Myers to be called the originator of "high-pressure anesthesia," and the perfecter of the original instrument for its application and report to this body at the next annual session.

DR. C. C. MOTTINGER, AKRON: My experience with high-pressure anesthesia has been running back, perhaps, nine or ten months, and I can say that what experience I have had with it has not been so favorable as some of those who have already discussed this paper. I have used several different makes of instruments, and in some cases it seemed very satisfactory, while again with other cases the success did not appear to be there. Whether it is attributable to the person wielding the instrument or the mode of application, I am not just able to state; but I have had this

experience in some cases where I have used the instrument where I have seemed to have perfect contact.

DR. W. A. PRICE, CLEVELAND: Doctor Weaver explained how high-pressure anesthesia was non-yielding. There is not another structure of our organization that should have elasticity more than a nerve of the teeth when we come to apply pressure, because it is confined in a non-yielding casing. Doctor Weaver proposes to put in a rubber behind his liquid. You all recognize at once that this is an essential thing. I would say that an instrument that does not embody something of that kind is not worth being used in this connection. But the method he uses requires that you have a friction contact that will be water-tight under high pressure, yet elastic enough so it will give with the changes of the pressure. I can't conceive how that is possible.

A column of any gas under twice the pressure occupies just half the space, so you readily see if you have a pressure on your teeth of, say, five pounds and increase it to ten pounds, which you do by turning the thumb-screw, a smaller amount than you could appreciate with a liquid, would compress that volume of air one-half. So I have been using for some time a device which works on that principle. It contains a column of air in a glass tube, and not only in that way applies an elastic pressure which is yielding all the time, and it follows up my liquid as the liquid goes out, by keeping up the pressure, but has a little meter to record exactly the pressure I am using. You see, you start to make an application on an exposed pulp, and immediately your patient responds to pain. You do not know how many pounds pressure you have used; but by this device you will probably see five pounds, and in just a moment you can increase that up to ten pounds, and your patient does not feel it. If it is five pounds you next try, you are positive you are not getting your liquid into the sensitive pulp, so you have an indication whether your anesthesia is progressive. You also have an indication whether your liquid is going in, by watching it. If the liquid is going into the tooth your air column is expanding all the time, and you can see just how much liquid has gone into that pulp in that time. You may think it is a drop. I have been putting in ten drops sometimes where I did not think I was putting in half a drop. And just the opposite sometimes, when I thought I had good contact, and it did not go at all, and I had no way to show.

There is another point. The method of making contact. There are a great many cases where I do not feel it is wise to cut into a tooth and make a new opening in the cervical margin or some other part of the cavity. Let this represent the cusp of the molar and you may have an irregular-shaped cavity through the enamel of this margin. Now without making any special preparations at all, I simply put my point into that cavity and screw down a little bur, which is on the point, which screws a rubber washer right down into this position over that tube, my point going up into the tooth this way, and this little device screws down onto the point until you have made a contact there which will stand seventy-five pounds pressure to the square inch, and most pulps will not stand over thirty pounds. So you make a contact there which is instant and which is water-tight under very high pressure.

DR. H. C. KENYON: I do not want to say very much, because I am afraid I am infringing on the next paper. I want to report, however, one case of what happened after the use of high-pressure anesthesia. I have no evidence, at least in the history of the case, which would lead me to believe it was due to the effects of high-pressure anesthesia, but rather to the improper application of it. I think that it is very harmful to use high-pressure anesthesia through the area of dentine which lies below the decayed surface. If the cocaine passes through this decayed surface, it will carry the ptomaine poison into the pulp. There is no way for the pulp to get rid of the ptomaine poison except through the general circulation. I believe it is an improper operation to inject a whole tube except where you are going to remove the pulp through the cavity of decay. I believe that ninety-ninths of all the failures to accomplish anesthesia is due not to any particular form or make of instrument, but rather due to the failure of the operator to get a contact between his instrument and the tooth. That is a vital point; that is an important thing to get the contact between the point and the tooth, so that the pressure will force the fluid into the tooth.

A small, well-pointed spear-point is the best instrument that can be used for opening up the tooth. There is no use trying to make contact with the enamel. A smaller and a sharper, deeper-pointed spear will drill the proper hole in the dentine. You can sharpen them as often as you like, and you can have them any shape you want.

DR. D. A. ALLEN, TOLEDO: I think it is not necessary to have near as much pressure as is generally supposed. In my own practice I have oftentimes been able to get into the pulp with very little pain, and sometimes without any at all, by the use of little bits of rubber and pressure with any blunt instrument. It seems to me so much pressure is uncalled for. These instruments of course make it possible to confine your liquid better than the old-fashioned and earlier methods, but it seems to me that to use such enormous pressure is a great mistake.

DOCTOR WEAVER: One point—Doctor Price stated that he used ten drops in the tube—I wish to speak of. If there is any dentist here who uses ten drops in the manner he speaks of, in the tube, I want to know where he is. If he puts ten drops through the cavity that he drills in the tooth, where does it go? Why, he would anesthetize the back end of the brain. All he wants to do is to anesthetize the pulp. If he wants to anesthetize a certain portion of the brain, it is all right. In speaking of the pressure in my device, I will have to be bold enough to say it is mine. I have a collar fitted back here on the instrument. As this moves up it gives the space and records the amount of pressure, which this gives here, just as much as you could measure it and record it on the piston.



SIMPLE METHOD OF REPLACING FACING.

BY E. C. DURYEE, NEW BRUNSWICK, NEW JERSEY.

When a facing is lost from a Richmond crown or a bridge, and owing to there being a very thin backing or for other reasons, it is not practicable to secure a new one in place by the usual method of drilling holes in the backing, countersinking them on the reverse side and splitting the pins in the new facing. The following simple method will give satisfaction: Drill holes through the backing in the usual way to correspond with the pins of the facing you wish to attach. Then place the facing in position and with a sharp instrument nick each pin at the point where it emerges from the reverse side of the backing. Remove the facing and with a file edge cut each pin about one-third through at the place nicked. Then replace the facing, with or without cement as you prefer, and bend the pins down closely to the backing. This method is probably not original, but I have found it both easy of application and durable.

WAXABLE VULCANITE.*

BY DR. C. S. PARKER, NORFOLK, NEBRASKA.

Not all of us, by any manner of means, are endowed with inventive genius, nor are many of us blessed with that quality of mind which singles a man out from his fellows and distinguishes him as an original thinker. It is equally true that the really expert operative or mechanical men are few and that their names are familiar to almost all of us. This, I think, is the reason that so many men shrink from appearing before their fellows in the role of an essayist and are reluctant to clinch before their brethren unless they have something new.

If the writer ever had any original ideas they have been of a very somnolent nature and began their Rip Van Winkle stunt prior to the time he was launched upon the turbulent waves of a dental career. So it is not the intention to startle you with anything new, and should success in arousing any one from his plate-work lethargy be achieved, it will be a source of great sat-

*Read before the Nebraska State Dental Society, May, 1905.

isfaction to the writer and an added pleasure he will have derived from this meeting.

In calling your attention to vulcanizable gutta-percha or waxable vulcanite as a base for dentures, I do so with perfect confidence in its ability to withstand any test you may care to apply to it. There are those so-called conservative members of our profession who will doubtless want the test of time applied, and what shall it be? Shall it be ten, twenty or a hundred years? There are many men who have used this material ten years, and some who claim to have used it forty. It is just a decade since I first became acquainted with it, and that acquaintance has increased until I have formed a very strong attachment for it.

If this attachment has led me to overlook its faults, I hope some maturer-minded brother will set me right.

As near as can be learned, vulcanizable gutta-percha is a combination of the ordinary vulcanizable rubber and gutta-percha, the exact nature of this combination is the manufacturer's secret. When vulcanized it looks like rubber, acts like rubber; if anything, is less porous, it is lighter in weight and cooler in the mouth. The method of manipulating is about the same as employed for base-plate wax, for instance, in the construction of a full upper denture. We will assume the model is in the articulator or with opposing teeth in position.

First make clean a place on the bench, secure a pan of clean boiling water and an alcohol lamp or Bunsen burner and spatula. Take a sheet of vulcanizable gutta-percha, soften by dipping in boiling water and mold over model evenly, as you would wax. Remove, trim, soften and mold again until it fits model as desired. Care must be used in this molding process that pressure is not unduly exercised at any one point for the obvious reason that the plate will be thinner at that point than at others. Now cleanse the teeth to be used of all wax and arrange on plate, heating neck of tooth and pressing to position. Build out contour by the addition of small pieces of the vulcanizable gutta-percha by softening in the water and passing through flame to dry, spatulating with warm spatula.

When teeth are satisfactorily arranged, try in mouth and trim for muscle displacement and contour, and to prove bite make what changes seem desirable and return to model. If plain teeth are used and pink festooned gum is desired, begin with last

molar and remove all the teeth; this can easily be done by warming teeth slightly. Lay down each on bench in order, so no confusion will arise in replacing them. Cut strip of pink rubber or pink vulcanizable gutta-percha wide enough to extend from just above pin marks to rim of plate and long enough to run from last molar on left side to last molar on right side. Warm this strip by passing through flame and lay on face of plate beginning at most distal point of either side, pressing it gently into spaces left by removal of teeth. Care should be used to have this surface smooth and free from spatula or finger-nail marks. Now take either central and warm by holding in flame and press into its original position. When in place you will observe a feston has been formed around neck which can be made heavy or light in proportion to the pressure exerted in returning tooth to place. Replace each tooth in this manner, smoothing palatine surface with warm spatula. Now remove plate from model. Take cement made by dissolving vulcanizable gutta-percha in turpentine and paint model around rim and across heel with solution; when dry, warm plate gently over flame and return to model, press firmly to place and spatulate plate to model to prevent plaster running under and lifting plate off model.

Now see that articulation is correct. Remove model from articulator and soak in water to drive off air, and flask. Vulcanize slowly and hold at three hundred and fifteen degrees one hour. Finish gum with stiff brush and pumice only; the rest of the plate as usual.

You have, of course, taken note of the many advantages this material has over rubber. In partial cases, and especially where clasps are used, a distinct advantage is gained in not having to reopen flasks. In cases where gum sections are used, no visions of dark joints or fractured sections will haunt you, and as there is no excess of rubber, no splotches of red rubber will show through the pink and danger of displacing teeth by pressure is entirely eliminated. Being lighter than rubber, it is more preferable for full upper dentures. Any thickness of plate can readily be obtained, and for repair cases it is the material par excellence.

DISCUSSION.

DOCTOR WAIT: Doctor Parker has given us a very able paper. The plan is one that in many ways is very successful. He has brought out the feature very nicely, giving a very nice direction for the use of the wax-vulcanite. There are some features I find have got to be modified according to the instructions given by him, and also by Doctor Raymond.

I have used it in a great many cases and had very good success with it. In one or two cases I had failures. For repair work it is very nice. It has seemed to me that the method of placing the rubber is quite a little task, to get those teeth back there where I originally had them. I find, however, in repair work that this material does not have the strength that rubber well vulcanized has; that, in my own work, has been demonstrated to me. In replacing a tooth and such things as that, it comes in very handy. It can be quickly done and with a great saving of time; also in repairing a broken plate. In partial plates it has not the necessary strength. I notice tomorrow Doctor Parker is to give a demonstration on this, and I don't doubt but that he will give us some nice and practical demonstrations, which will be a great pleasure to witness, following such an able paper. I would like to ask Doctor Parker how long he has been using this?

DOCTOR PARKER: I have used it for ten years.

THE FRÆNUM LABIUM—FORM OF MALOCCLUSION.

BY D. W. FLINT, D. D. S., PITTSBURG, PENNSYLVANIA.

For some time past I have been impressed that a line on the frænum might be of help to some one and especially to those who have not had the privilege of reading Dr. Edward H. Angle's latest work on malocclusion.

It is an old adage that has it, "that one always sees what he may be looking for," and so it might be that I see more of those distasteful spaces between the upper central incisors than the general run of practitioners; however, the object of this short paper is to state that this form of malocclusion may be corrected and that by any dentist, no matter where he might be located

Not necessarily all cases where the upper centrals are separated are due to an abnormal frænum, for we find at times the laterals missing and again a shifting due to extracting some tooth or teeth farther back in the arch. The normal frænum should end in its attachment to the gums about five millimeters

above the gingiva. The abnormal or enlarged frænum can always be diagnosed by pulling the lip with the fingers, and if we see it drawing as a cord from an over-developed tuft just back of and between the centrals, we know that we have a frænum case.

The growth of the frænum at times reaches a space of five millimeters, and like any muscular organ is developed by its use. In the case I present here I have purposely chosen one in which the space between the centrals is rather narrow. I had a case sent to me last week for operation where the space was one-quarter of an inch in a girl nine years of age. There are always some to say of such cases, "What's the use?" These cases are always progressive and the wider the space the more injury to the speech and appearance. I know of an elocutionist who lisps, but owing to the loss of the teeth in the posterior portion of the mouth an attempt at correction I believe would be a failure through not being able to get proper support in retention. You will notice that the laterals of this ten year old boy have not as yet erupted. This makes the case just ripe as it were for correction at this time, for the laterals will erupt in their proper place and this acting as a wedge will assist in holding the centrals in their proper place.

The operation is a very simple one, and yet when not properly done is the cause of much annoyance to both patient and operator. The cause of the malocclusion is the tenacious fibres of the frænum mechanically holding the centrals apart, so that these must be destroyed if permanent results are to be obtained.

The operation consists in first making and cementing two Magill bands on centrals with two small lugs for the future ligating by brass ligatures of these teeth. Then the parts are locally anesthetized by cocain or ethylchlorid. A deep incision is made severing the frænum in a splitting manner, up and down; then this is followed up by an electric cautery, care being used not to injure any of the normal parts, such as the peridental membrane. Chromic acid may be used in a similar manner, in which the rhinologist uses it, namely, by putting a bead on probe and touching the incised parts.

After three or four days, or when the soreness has passed away, the teeth are ligated with brass ligatures, and in a few

days will be drawn together, depending on the separation and age of the patient.

Permanent retention may be had by soldering two Magill bands together and cementing on centrals.

The time of retention depends on each case and the operator will have to use his own best judgment.

PROPHYLACTIC AND REPAIRATIVE TREATMENT OF THE DECIDUOUS TEETH.*

BY GEORGE EDWIN HUNT, M. D. , D. D. S., INDIANAPOLIS,
INDIANA.

The care of children's teeth is a subject of vast significance, one on which many papers as long as this is intended to be, might be written, without fully covering the field. The care of the permanent teeth alone, during childhood, is worthy of earnest study; conditions under which extraction of the first permanent molar is justifiable, in themselves would furnish material for an interesting paper. So, in order to limit my effort to a reasonable length, I have confined my considerations to prophylactic and repairative treatment of the deciduous teeth alone.

No man is justified in undertaking operative procedures for children who does not love children and dogs. They are very similar, each having intuitive perceptions concerning those friendly or unfriendly to them. If an antagonistic feeling is aroused in the mind of the child the operator is at once at a great disadvantage. On the contrary, a spirit of camaraderie and mutual confidence once established the child will often prove a better patient than the parent.

I do not propose to dwell on the methods of establishing the desired relations with our youthful clients for these vary with the personal characteristics of the child and in this latter respect no two children will be found exactly alike. The ability to bring the efforts to a successful conclusion will depend on the tact and personality of the operator. However, the general rule should be borne in mind that even with the greatest confidence and affection for the operator that can be desired the child is physically unable to withstand the strain of long sittings and the

* Read before the Indiana State Dental Society, June, 1905.

length of the visit should be curtailed proportional to the age of the patient. The pain of operations on the teeth of children is much less than in similar operations on the teeth of adults. I have seen children masticate their food directly on hypertrophied pulps filling broken down molar crowns, with seemingly no physical inconvenience. This comparative immunity from pain is fortunate as it enables the operator to accomplish things that would be impossible if exquisite hypersensitivity existed as it so frequently does in the adult teeth.

Instructing the mother regarding care of the deciduous teeth is the first and a very important step toward promoting prophylactic measures. Indeed, care of the mouth should begin before the teeth erupt. From the time the baby is born the mouth should be cleansed after each meal of milk. This can be effectively and easily accomplished by means of a tepid, ten per centum solution of Listerine or similar wash applied on a piece of soft linen, the entire mucous membrane of the oral cavity being wiped with the solution. As soon as the deciduous teeth appear they should be included in the cleansing operation. By the time the child is two years of age the cleansing of the mother or nurse may be supplemented by the perhaps ineffective but ambitious efforts of the child to use a tooth brush. At four years of age, or younger, with previous proper instruction and encouragement, the child should habitually use the brush after each meal, under the observation of the parent or nurse, to insure thoroughness. The use of the waxed thread should be persevered in from an early age. Habits of cleanliness thus once established will be more likely to extend through the years of childhood and youth to the time when a more mature mind realizes the desirability of their continuance.

In case the child presents as a patient and no caries exists, the condition of the individual teeth should be carefully noted. If deep fissures and roughened surfaces are found, inviting decay, silver nitrate in a forty per centum or stronger solution should be used liberally after the manner advocated by Dr. L. C. Bryan, of Basle, Switzerland, which is practically as follows: Have the solution, made with distilled water, conveniently at hand. Heat a few shreds of asbestos wool to a white heat to drive off all organic matter and felt them on platinum wire or a platino-iridium broach. Isolate the tooth with the rubber dam. It is unnecessary to use clamps, ligatures or rubber dam holder. The

deciduous teeth all have constricted necks, obviating the necessity for clamps or ligatures, and the rubber can be held out of the way with the fingers for the short time it needs to be in place. Paint the tooth-crown thoroughly with the solution applied by means of the felted asbestos shreds. With a quill pick or platino-iridium broach work the liquid to the bottom of all fissures. Let it dry on the tooth if possible, but if the little one gets impatient, take up all excess with bibulous paper or absorbent cotton and remove the rubber. If allowed to dry on the crown, remove the salts which will have crystallized on evaporation of the water, with cotton or bibulous paper before removing the rubber. This treatment twice a year, with the ordinary daily cleansing by the patient or parent, is more than likely to absolutely inhibit caries in that mouth. The silver nitrate will not stain the enamel. It will stain organic matter *on* the enamel, but that may readily be removed with a little powdered pumice. The silver nitrate destroys all bacterial life and renders exposed dentin immune to caries for some months.

My faith in the efficiency of silver nitrate on dentin in the deciduous teeth is great. I have equal confidence in it when used on the permanent teeth, but it is not so often indicated there. The crowns of the deciduous teeth are small and cavities so frequently occur in shallow, non-retentive forms, that the problem of cutting them out to receive filling materials, is often a serious one, especially when the age of the patient is taken into consideration. In shallow proximal cavities in incisors and cuspids no effort need be made to shape and fill the cavity. Remove all disintegrated and softened dentine with spoon or hatchet excavators or, if it is very superficial, with a file, and treat the surface thoroughly with silver nitrate. For this purpose I prefer a very strong solution of the crystals themselves. If it is desired to use the silver salt itself, dip a moistened platinum wire into some powdered silver nitrate and hold in a flame until the salt fuses. Slightly moisten the surface of the dentine and rub with the fused salt. I may say, however, that I have never failed to get satisfactory results by dissolving as much silver nitrate as I could in four or five drops of distilled water and applying it in any convenient manner, preferably with asbestos felted on a platino-iridium broach. In employing this method of treatment for these cavities the operator is assisted materially by nature in that the anterior deciduous crowns recede from each other as the jaw

expands, minimizing the tendency to retention and decomposition of food. Of course the treated surfaces become perfectly black and from an aesthetic viewpoint that is a drawback, but results are of more importance than aestheticism at this stage in life. The efforts of the operator in caring for the deciduous teeth should be eternally and everlastingly directed toward preserving them with living pulps and if appearance has to be sacrificed in accomplishing this, let appearances go bang.

In more extensive proximal decay in the anterior teeth, the cavity should be excavated and formed as well as circumstances will permit. The removal of the marginal decay can certainly be accomplished, although in work on the deciduous teeth the ideal has constantly to yield to the practically possible. If compelled to leave some infected dentin either treat it with silver nitrate in the manner described or soak asbestos felt in a silver nitrate solution, let it dry and place it against the dentin walls before filling the cavity. Dr. E. C. Kirk suggests this latter method and further advises keeping asbestos felt so prepared in well stoppered bottles in a dark place that it may be ready for use. Silver nitrate should always be kept in dark bottles, well stoppered. It decomposes into silver oxide otherwise. The crystals may be relied on to be pure. Many dentists use the fused sticks and if the stick be made from the pure salt there can be no objection to its use. A diluted stick composed of two thirds potassium nitrate and one-third silver nitrate is also on the market, but for the purposes indicated above it is inferior to the crystals. The salt is freely soluble in water.

The cavity may be filled with gutta-percha, cement or tin. If it be a simple proximal cavity and circumstances are such that fairly good excavation has been accomplished, a couple or perhaps three small pellets of tin foil may be quickly inserted and burnished down. If retention will permit gutta percha may be used and if there is evidence of great susceptibility to caries cement will doubtless be found the most effective stopping.

In case of mesial and distal decay in the same tooth, where the pulp is living but the loss of tooth structure is such that but little preparation is needed to fit a band, crowns of pure gold may be put on the anterior teeth after the manner advocated by Dr. Shryock, of Fort Wayne, some years ago. They will preserve the lives of the pulps until physiological absorption of the roots

is completed. Pure gold is advocated as being more malleable and therefore more easily and quickly fitted and formed.

In occlusal decay of molars I prefer tin cylinders for filling, if the proper preparation can be secured. Tin will not wash out, will withstand mastication, and has a salutary effect on tooth structure not attained by any other filling material. If the fissures are small and there is a difficulty in excavating and shaping the cavities, do the best you can under the circumstances and fill with oxyphosphate of copper, pressing it to the bottom of all crannies and fissures with a finger. Gutta percha makes a good filling for occlusal surface cavities, but it is seldom you cannot use tin if you can use gutta percha. In proximal cavities in molars, tin, gutta percha or cement may be used as indicated, although the latter is seldom indicated except in periods of great susceptibility. Distal decay in the first molar is nearly always accompanied by mesial decay in the second molar. The constricted and relatively small necks of the two teeth permit the second molar to move forward as loss of the proximate surfaces takes place, this in turn allowing the first permanent molar to move forward until it is not unusual to see the second bicuspid crowded within or without the arch from this condition of affairs. To preserve the position of the second molar and insure room for the second bicuspid, it is well to fill the molars with base plate gutta percha, allowing the material to rest against the mesial wall of the second molar if there be no mesial decay, or to fill the mesial cavity if one be present. The little one in chewing food will crowd the second molar back and insure the necessary room for the second bicuspid. The only possible objection to this method is the danger of the filling material being crowded down on the gum tissues, causing harmful recession of them and even of the process. In case of proximal decay in one molar without proximal decay of the other the only recourse of the practitioner is to insist on seeing and changing the filling material at intervals of from three to six months. If decay exists in both molars the gutta percha may be supported and kept away from the gum tissues by means of a metal bridge. A piece of suitable sized platinum or gold wire, about 15 to 17 Brown and Sharp gauge, run through the rolls flattened and cut to the proper length, the two ends coated with thick chloro-percha, may be placed with an end in each cavity and covered over with the

base plate material to form the filling. Distal cavities on cuspids and mesial cavities on first molars may be similarly treated.

The two points to be borne in mind in the treatment of the deciduous teeth are (1) to preserve the pulps alive in order that physiological absorption of the roots may take place, and (2) to present masticating surface enough in the molar region that food may be properly triturated before deglutition. In carrying out the first purpose, as has been stated before, the result justifies the means absolutely and all consideration of appearance may be relegated to the rear if it threatens to imperil the issue.

DISCUSSION.

DR. J. P. ROOR, Kansas City, Mo.:—My trip here, was expressly to hear this paper, I could not understand how Doctor Hunt could write anything pertaining to children's teeth until a few days ago, when my wife, remarked to me that the name of a friend of mine was signed to the "Mothers' Column," in the *Ladies Home Journal*, so when seeing the name of George Edwin Hunt attached, my opinion was, if he could edit such stuff he could write on the care of children's teeth.

Yesterday while visiting in his room on some side street, my first impressions were, that the surroundings indicated he was supreme authority on babies, as the motley array of bottles in every conceivable location seemed a sure sign of babyhood, but a close inspection showed they were all "Dead Ones" and not the kind demanded by "Maternal Instinct." In one corner was a beautiful wicker cradle, covered with a silk slumbering robe. I carefully tiptoed to it, thinking here is George Edwin Jr., but close inspection showed the occupant to be of a dark ebony hue, covered with long silky hair, and his name was Fido. Then only assuring evidence of Hunt's ability to write a paper on children's teeth, was the fact that Dog Fido was toothless, demonstration that at least Hunt had tried his theories on "the dog," also showing he was too humane to practice on a human. The only excuse for the lack of information in the paper, is probably the fact that Doctor Hunt never has had any experience with human teeth.

There is no question but what the treatment of children's teeth is the source of much annoyance, so much so many operators slight the work.

My aim is to give as careful attention as possible, not daubing some very plastic cement in a cavity, where I desire to retain the tooth for two or more years, but treat the same as an adult, obtaining separation when needed, lining cavity with cement and filling with amalgam. With the idea in view that as children do not take proper care of their teeth, restoration should be such that contour and point of contact will be so perfect, the lack of care will not be detrimental.

I love children, and have a number at home, and aim to take at least as good care of them as Hunt does of his dog, I also try to treat my

young patients with such consideration that my troubles will not be such as my friend Dr. James of Chicago is subject to. He informed me confidentially that a lady came to his office with a charming child, (charming to the mother, no one else) after laboring with the young one for an hour he said to the mother, "Madam, if you do not beat this child I will." Her advice to him was to do the beating, as he would to his own children, which he did.

He told me he had no further trouble, and gave as the reason the child was insensible.

I hardly agree with his system, my idea is to have the child patient of to-day, my adult patient in years to come. My treatment of children's teeth (and in fact all teeth) has changed considerably in the last year, since I have been following the prophylaxis treatment advocated by Dr. D. D. Smith of Philadelphia, believing it is far better to know how to prevent caries than to remedy the evil.

DR. JAMES:—I have had a great deal of experience with children and I have found that I can treat their teeth just about the same as I can an adult's. As the speaker has said, a great many cases come to us with the pulp exposed or removed and they want to get comfortable. In a great many cases it can be done by a simple treatment of carbolic acid, or putting in a cement filling, and allow the pulp to die. When you find that the pulp is dead open up the wall and fill the root. I think it is just as essential that we be careful with children's teeth as that we take care of adults.'

DOCTOR NYMAN:—There is some explanation of why children, such as Doctor Thompson spoke of, are so different, that one child will want a bath, and the other not,—they exhibit different traits, but some are inherited from the father and some from the mother, in Doctor Thompson's case it is easy to infer whom they resemble.

Sometimes I have occasion to feel great pride in my friend Doctor Hunt, and sometimes I feel quite ashamed of him, and to-night I really felt proud of his paper—that is a large percentage of it—as it was written in such a way that what he said was logical and scientific, and I felt proud of him on that account, but there were other places that made me ashamed of him.

In the first place Doctor Hunt should have been an advertising man instead of a dentist. You will observe that the title to his paper was published in the simplest language it could be, but that didn't suit him so he composed a title composed of college words to call attention to the fact that he is a college man, that is, is conducting a college. While this may not have dawned upon you then I am sure it does now.

He made a number of rather arbitrary statements and in order to make them indisputable, he attempted to justify his right to make these statements by making the claim that dogs and children were very much alike, which simply goes to show that he doesn't know anything either about dogs or children. I am informed that in his effort to demonstrate that dogs and children were very much alike he killed three dogs, and the only basis for this remarkable statement is, that he has learned that children have convulsions and dogs have fits.

I think that children are more susceptible to diplomacy than older persons. The sight of a dental chair is enough to frighten most children. I make it a point that when a patient speaks to me about their children having some work to be done, to tell the mother if I expect to finish her teeth at the next operation that I wish to polish them and that I wish her to bring her child with her and she does and it sits in the office while I am polishing the mother's teeth, and I enter into conversation with it, and tell it funny stories if I can think of any, and I have books in my office for children and I allow them to read and look at the pictures while I work on the mother's teeth, and when I put the child in the chair no attempt is made to do anything except clean the teeth and in the preparation that I use I put essence of peppermint so that everything is just as pleasant at the first visit as possible, because first impressions on children are quite apt to be permanent.

I have never made use of tin in filling children's teeth. I think we have something that is better, and something that can be more easily inserted, and that is copper amalgam. Furthermore, I think it preserves the teeth better. I have not been able to put a rubber dam on deciduous teeth, for the children will complain that they are choking; they will get frightened and you can't do anything with them. I do not think this is necessary. I have devised an instrument that pumps out the saliva and deflects the tongue which the child can hold itself. I do not apply the rubber dam or attempt to apply it. I have never had injurious results on account of applying nitrate of silver on deciduous teeth. I usually wash the cavity with carbolic acid and dry out very thoroughly so that there will be none of the acid left.

I think Dr. Hunt was correct when he said that we were perfectly justifiable in sacrificing appearance to save deciduous teeth, and especially in the prevention and relief of pain. I do not think appearance need to be considered for a minute when it is absolutely essential that we maintain the tooth in the mouth.

Another thing: In operating in children's mouths I attempt to do as much as I can with hand instruments and use as little force as possible. Some of these advices may seem childish in themselves but I have a clientele among children that I am proud of and some of my most loyal patients are those who once were children in my practice, and I feel fully repaid for all of these acts of diplomacy that I have practiced in past years, for I have great comfort in their friendship and confidence.

DOCTOR ALBRECHT:—I can speak with experience that children's cases are very hard to handle, because they are usually frightened and scared. This is due to the terrible tales that are told. Sometimes the mother accompanies the child to the dental rooms and sits beside him, and he will naturally shrink from the dentist and over toward the mother on account of his affection for her, and his fear of the dentist. The mother wants to soothe the child and tells him it will not hurt him much and not to be afraid, but the mother speaks a lie and thinks the truth, and by intuition this child feels what the mother thinks and the lie has no influence. I have in a number of cases sent the child and the mother home and asked to have the father sent along the next time, or some-

one that is quiet in disposition. There is a much different scene at the next meeting. If the father comes along he will lie down on the lounge in the office and smoke his cigar, and I have a picnic with the children. Often the mother gets a little mad, but when the father goes home and tells of his experience everything is all right.

DOCTOR ———:— I have had some experience in my practice of six years, but I was a little afraid to mention what I have seen until one of the former speakers spoke of amalgam. I had amalgam filling all around my teeth and the marks are there yet, but at the same time I think it was a benefit, and I have never had any trouble with gold fillings, and they have been in about fifteen years. I had one side of my mouth filled with copper amalgam and the other side with silver. I use copper amalgam in my own practice on children's teeth almost exclusively, and I find that it is a very beautiful filling, and there has been absolutely no decay around these teeth. Whether the other dentists agree with me or not I will give you my word that if you will use this copper amalgam as directed you will have the best satisfaction of anything you can possibly use in children's teeth.

DOCTOR CHAPPELL:— In speaking of the care of children's teeth, many children are very careless about the care of their teeth; they neglect them. In caring for children I want their confidence first. I always cleanse children's teeth and in doing that I often use a solution of hydrate of soda, and sometimes peroxide of hydrogen. I have always been at a loss to know what becomes of the pulps in children's teeth when they are exposed. When you are handling children's teeth you want to be very careful as you do not want to injure the permanent teeth. I always use the best amalgam I can get, and in the front teeth I use cement for the sake of appearances. I never fill at first with gold, but first with cement and let that stay in the neighborhood of six or twelve months. I do not like the use of nitrate of silver from the fact that it takes so much time and I have found that many people complain on account of the discoloration after using it. When I am working on a child's teeth I never allow the governess to manage it; I'll attend to that myself.



CLINICAL LECTURE ON MANIPULATION OF
CEMENTS.*

BY D. MAURICE ALBRECHT, INDIANAPOLIS, INDIANA.

I am here before you with a few remarks on dental cements. I wish to be rather practical than theoretical or academical.

For over twenty-six years I have been using dental cements. In the early days of my practice, persons applied to me to save teeth that were badly wrecked. The teeth were badly broken down by caries, chalky in appearance and under the action of the excavator. I did not wish to condemn them. I did not wish to extract them. I proposed to fix them up with cement fillings and make them last for an indefinite time. The patients consented. Many of those cement fillings I have had the advantage of examining in the course of a year or two, and I thought that I noticed a decided appearance and condition of improvement in the character of the teeth. The teeth, which, according to my recollection had been chalky, had become hard and flint-like. The verification of that discovery has repeated itself to this day.

The only deplorable point about cement fillings is their wearing off, which is unavoidable and explainable on account of the more or less rough surface which they expose to the masticating process. On account of a lack of a smooth, enamel-like surface or consistency, cement fillings will wear down so rapidly that they cannot be considered permanent. If only we could bring about a crystallization of minerals within a reasonable time and under ordinary conditions, such as would make it practicable at the dental chair, it would prove the ideal filling. In nature we have discerned only two methods of forming crystals. One is slow, such as is the case of enamel prisms in the human system, requiring years to complete it; and crystal formations in caves. The quick process is the furnace process. Neither of these methods, you perceive, is applicable in dental practice.

More than once have I been approached by dentists with the question: "Doctor, what kind of cements are you using?" The question was put in such a manner that I could readily

*Read before the Indiana State Dental Society, June, 1905.

discern the whole purport of it and laughingly I replied: "Ah, you have seen some of my work." They blushed (if such a thing were possible for a dentist, because we have often been told that dentists would have a hard time getting into heaven). Well, they blushed, I believe, and admitted that such was the case. I told them what cements I had been using, and they replied that they had been using the same kind, but had had no such results.

I wish to speak here of my personal experience. It had never occurred to me to compare my dental cement work with that of any other dentist. Others saw my work and found it good: so good that they considered it worth while to approach me for information. I do not wish to pose as one who knows more than any other dentist on this subject: but it made me feel good to hear that my work proved satisfactory to my patients and to my brethren in the profession.

I kindly invited the inquiring dentists to my office. I placed the cement material before them and requested them to make a mixture according to their understanding. Then I made a mixture according to *my* understanding and wished them similar results in the future if they could grasp and demonstrate my advice and manipulation.

In anticipation of your questioning mind, I will try to satisfy you in a few words about my ideas and manipulation of dental cements, and follow it up with some practical demonstrations during the session of this association.

The laws that govern dental cements are analogous to those of plaster of Paris. The law of affinity is as absolute in chemistry as in the realm of psychology. Undesirable conclusions have always been preceded by ignorance and error in the premise.

If you mix plaster of Paris too thin, the result will be a poor cast. If you mix it too thick, you will likewise obtain a cast of inferior quality. If you add anything to the plaster to hasten the setting process, you will likewise have an inferior result. On the occasion of taking a plaster impression in the mouth it is justifiable to artificially accelerate the setting process, and if a cast is made immediately from the impression, we can expect satisfactory results. For the cast we should use only pure plaster of Paris, mix it judiciously and wait—yes, wait for good results.

Quick-setting cements have their purpose, yet their application is rarely indicated and required. Their durability is unquestionably a disappointment.

In the mixing of the cements, be quick and active. There is a tendency in the profession to mix cements too thick. Get away from that tendency; get away from it as far as possible. The kneading or working with the fingers or a mixture of dental cements prior to the introduction into a cavity is all wrong. Fill your cavity flush, and let it alone. Don't constantly disturb it, till you cannot disturb it any more on account of the advanced stage of crystallization. If you agitate plaster of Paris while it sets it gets crumbly. Please apply this fact to dental cements. If you introduce dental cement in the right consistency it will exhibit a glossy surface when set.

After I have made a cement filling I keep moisture away from it as long as possible and practical. The finishing off I accomplish at a subsequent appointment. I like to defer that part of the operation for several days.

I have always been very particular to finish a metal filling perfect with the contour of the tooth. With the cement fillings I pursue the very opposite method. I desire the filling to lap over the entire margin of the cavity. This method has given very gratifying results. By this method, disintegration, near the gingival border of the cavity, on account of chemical decomposition I have found out to be less evident than reduction of size on account of attrition. Disintegration near the gingival border of the cavity used to be a source of aggravation a good many years ago. Once upon a time I fell upon the idea to permit my cement fillings to overlap and remain so, and the result was very satisfactory. Another satisfaction I had which was the protruding and overlapping filling never was productive of irritation or inflammation to the gums.

My observation and claim is that dental cements will set and get harder not only for a few hours, but for days and weeks and months. A cement filling that is properly manipulated will be harder at the end of a year than at the end of six months; and what is left at the end of two or three years exhibits harder qualities than after the lapse of one year. That has been my opinion for several years. I have seen in a remarkable state of preservation some of my cement fillings that had done hard service for from six to ten years.

I feel that we always have had good cements in the market. That is my opinion extending over a period of twenty-six years. There may have been poor cement filling materials; I doubt that there are any nowadays. I have always been looking out for the best materials. A possible question of what I consider the best products in the market I wish to decline to answer in justice and fairness to all manufacturers. A high price is not always a guarantee for superiority, and there is a limitation to cheapness that should rob us of a sense of confidence.

Only once in twenty-six years did I handle a cement that was a failure. After watching it for six months in the mouth of my patients I pronounced it "no good," and so told my dealer in dental supplies. "Why," said he, "you are the only man who says that; we sell more of that cement than any other." "Well, then I am *one against the whole profession*," I replied, "but I stick to my opinion."

Six months later the manufacturer withdrew the product from the market, because—well, it was not a woman's reason.

Deep-seated cavities, where I come in close proximity of the dental pulp and where it is desirable and likely possible to protect and save the pulp, I cover with a preparation of my own invention. I dissolve white gutta-percha in chloroform and add a few drops of the oils of clove, cinnamon and cassia. I use the essential oils in preference to carbolic acid, creosote, formaldehyde, etc. The former are mild and safe and quite satisfactory; the latter are caustic and dangerous. With a dull-pointed instrument I can carry easily as much as is needed to cover the floor of the cavity, and then proceed to fill with cement.

I will take pleasure in passing among you a bottle of this preparation for the gratification of your inquiring mind. A look at it and a whiff will not put you to sleep nor impair your mind.

Permit me to call your attention to a glass spatula which I have designed and used for some time, and which to me seems to be the ideal instrument for manipulating dental cements. Chemically it is not acted upon by the acids and in return gives off nothing that might enter into the purity and union of the material, thereby leaving a chemically-pure mixture. That is desirable. To my observation it seems to dem-

onstrate that the cements will not set so fast, allowing me from five to ten seconds more time for manipulation before the setting process starts. That means a good deal to me. And I am inclined to believe that absolute purity of the mixture insures increased hardness and durability.

I have spoken from the point of view of practical and applied test and not from laboratory test.

Every cement has its particular peculiar characteristic which is evident to every acute operator. Some cements must be mixed thicker or thinner than others to obtain the most desired result. Every dentist should acquaint himself thoroughly with this feature of his material.

There has been, there is, and there will be, a great lack of discrimination evident in the dental profession with regard to possibilities and methods in saving tooth structure. In the past, extraction was resorted to frequently. Of late, crowning of teeth is practiced considerably. Both of these methods could and should have been postponed if cement fillings had been employed. The crowning of a tooth should be postponed *as long as possible*. To that extent I am conservative. More conservatism, more discretion of methods, more conscientiousness, more ability ought to be the slogan. Naturally the question presents itself: "When would you determine upon cement fillings as advisable?" I have decided to submit this question to a discussion by the present association. One of the greatest charms of a meeting is the opportunity for discussion.

Ladies and gentlemen, it is the man behind the gun who directs the result. Don't condemn the material. Learn to manipulate it. The enormous amount of poor gold fillings has never condemned gold and pronounced it a poor filling material. Gold has proven to be the most satisfactory permanent filling material. Yet it is sometimes the very worst to use. This is nothing new to you. The choice of a filling material ought to be determined by the dentist, not by the patient. The application of porcelain inlays for restoration of tooth structure and prevention of future caries has great possibilities. Good alloys in the hands of skilful, conscientious operators have proven a blessing to their patients despite the unjust and snobbish condemnation of the gold-bug advocates.

The proper manipulation of dental cements will prove a comfort to a distressed humanity.

NON-COHESIVE GOLD AND SOME OF ITS USES.*

BY DR. H. A. SHANNON, LINCOLN, NEBRASKA.

The subject which I desire to present to you today is not of recent origin, nor the idle fancies of a day-dreamer which will take time to prove the statements made in its behalf, but one that has been tried and has proven to be all that is claimed for it.

If the dental profession in general more fully understood the advantages which this kind of gold possesses over cohesive, where it is indicated, there would be a great deal more of it used.

I fully appreciate the fact that there are those who will say, what you have told us sounds all very well and good, but can it be done? and is it practical? and will it give service? In reply to these queries I will say that it is used very extensively by some and has proved to possess merits that cohesive gold does not. It can be done as I will demonstrate in the clinic. There are some who will say it cannot be used only in certain places and for that reason object to the use of it. These same parties forget that cavities form in places that are next to impossible to fill, and others that are out of the question to fill at all, with cohesive gold. Then why cannot this same argument be applied to the use of cohesive gold as is applied to non-cohesive gold? In fact this same argument can be applied to any filling material we have.

In order to properly fill a cavity with any filling material it is necessary that care should be exercised in the preparation and certain definite principles followed in order that the operation may be a success. One of the principal reasons why many have had trouble and failures have accompanied their operations is that they have lost sight of the fact that the preparation of a cavity for this kind of gold differs entirely from that for any other kind of filling. The cavity must be so shaped that it will retain the filling after it has been put in place. The cavity walls must bear such a relation to each other that they will hold the particles of the filling material in apposition.

*Read before the Nebraska State Dental Society, May, 1905.

Cavities may be divided into the following classes:

First: Those on the occlusal surfaces of the molars and bicuspid.

Namely, fissure cavities.

Second: Fissure cavities on the buccal and lingual surfaces of molars.

Third: Gingival cavities on the buccal and lingual surfaces of bicuspid and molars, and the labial surfaces of the six anterior teeth.

The points a cavity must possess in order to be properly filled are as follows:

First: Must have four good strong walls sufficient to resist the pressure required to condense the gold.

Second: Must have parallel walls.

Third: Must have a flat base.

Fourth: Must have deep undercuts at base.

Fifth: Undercuts must be in the dentine.

Sixth: Margins must not be beveled.

Parallel walls can best be secured by the use of a fissure-bur. In case the cavity can be reached with the straight hand-piece so as to retain the parallel condition that instrument may be used, but if the cavity is located where it is uncertain it will be best to employ the right-angle. In case a crosscut-bur has been used, the final finishing of the margin should be done with a smooth-bladed fissure-bur so the small broken particles of enamel about the margins will be removed. In case the floor is rough and the cavity is so deep that there is a liability of exposing the pulp if dentine enough is cut away to secure a smooth, flat surface, fill in with cement and then smooth.

The undercuts should be deeper than an inverted cone will cut, and should be made in the dentine. The amount of undercut required of course depends upon the size of the cavity. That is, the larger the cavity the deeper the undercut should be.

The margins should not be beveled for the following reason: The filling is made up of a number of layers of gold standing side by side, and in order to make these particles stand up there must be something to hold them in apposition. If this one point is overlooked there will be a breaking off of the particles of gold about the margin and sooner or later a failing of the filling at that point. It is true that the advocates of cohesive gold will object to this finishing of the margins, for we are taught that we should in all cases establish the line of cleavage.

Of the three classes of cavities enumerated, the third will be the most difficult on account of the oval shape to that surface of the teeth. Those cavities on the buccal surface of bicuspids are more difficult to fill than those on the surface of molars on account of the greater convexity of the surface.

Non-cohesive gold is not restricted to the use which I have given for it, but is used in conjunction with cohesive foil to a good advantage to fill the cervical one-half or two-thirds of an approximal cavity. This use of the gold I will not discuss.

The instruments used for this kind of work differ from those used for cohesive gold in that they should not contain serrations, as the filling is inserted by wedge-pressure and then condensed by malleting. The instruments necessary for the manipulation of this kind of gold are not numerous. Nearly all fillings may be inserted with six or eight, the full set being twelve.

The gold is prepared in the following manner: Do not be afraid to touch the gold, as you are not going to injure it in the least. For an assister in folding the gold into a ribbon I use an ordinary case-knife. Place a sheet of gold in the palm of your hand and continue to fold by creasing until you have secured the proper width for the length of the cylinders, which should be one-fifth longer than the cavity is deep. Take what is known as the gold-roller and begin at the end of the ribbon and roll into the proper-sized cylinders for the cavity. Make some large, some small, and some medium in size, for the various parts of the filling. Suppose we are to fill a fissure cavity in a molar where the cavity is already prepared. Begin with the largest cylinders standing one on end so that it rests firmly against the floor, then with a foot-instru-

ment press the cylinder to one end of one of the fissures, exerting considerable force to partially condense. That portion of the cylinder against the floor should be forced into the undercut. This process should be continued until the fissures are filled, leaving the central or main portion for the final wedging. This wedging should always take place from the center out and never next the margin. Each cylinder that is inserted must go to the bottom of the cavity, thus the importance of a thorough condensing at the floor each time a cylinder is inserted. As the finishing stage of the filling is reached, the cylinders must be diminished in size until the final wedge is used. Further condensing of the gold is accomplished first by hand pressure and then followed by the hand-mallet. The condensing with the hand-mallet should be more violent than would be required for cohesive gold. The finishing of the filling can be accomplished by means of stones and burs. After the filling has been partly dressed down, the malleting should be repeated.

Some of the reasons why I use this kind of gold are:

First: Because it is a tooth preserver.

Second: Because I can save both time and worry for the patient and myself.

Third: Because it can be put in without the use of rubber dam if need be.

DOUBLING GOLD PLATES.

BY L. P. HASKELL, CHICAGO, ILLINOIS.

In an article in *THE SUMMARY* for July, taken from the *Dental Review*, the writer says he objects to soldering plates together to stiffen them. He also objects to the use of 20-k gold, prefers 18-k.

I take issue with him on both points. For at least forty years I have used 20-k gold, and greatly prefer it from every point of view. As to the doubling of plates in partial sets, 28-gauge plate, doubled about one-half its width is far stronger than a single plate of 26 or even thicker gauge, and far less

liable to get out of shape, and if it should be bent, I find no difficulty in restoring it. The use of platinum in plate I emphatically object to. It is liable to warp in soldering, and if by chance it is bent, it is next to impossible to restore it.

In my earlier experience I used 18-k, but far prefer the 20-k.

TO REPAIR A BROKEN TOOTH IN A GUM SECTION.

BY F. H. WILKINSON, D. D. S., GLADSTONE, MICHIGAN.

Grind out the broken tooth from the section, even with the gingival margin, then select a plain vulcanite tooth of proper size and shade and grind to fit the space. Pack in fresh vulcanite around the pins of the tooth and vulcanize as an ordinary repair case. If a little care has been used in making the joint at the gingival line, the job cannot be detected from a full new block.

A FEW PRACTICAL HINTS.

BY DR. L. O. FRANTZ, ALLIANCE, OHIO.

A cheap and a very effective swaging device can be made out of an iron cap for one inch gas pipe by filling it with lead or soft solder to within a quarter of an inch of the top and the balance with express wax or Ash's dental lac. Warm the lac over a Bunsen flame until it softens and begins to flow; then press your plate tooth, extracted tooth or a form from the Hollingsworth system, or some other system, into the lac, cooling in water. Place a piece of gold over the impression in the lac and with small piece of soft rubber (a half inch cube is good size), and a three-quarter inch punch drive gold into impression. Just as good work can be done with it as with one costing from \$1.50 to \$10.00, and this only costs 5 cents for cap at any plumber's establishment and 20 cents for a cake of Ash's lac at the dental supply houses. A piece of hardwood answers for a punch as well as steel.

For turning the lathe wheels I use a Huntington emery wheel dresser that can be purchased from Sears, Roebuck & Co., Chicago, for 42 cents. The dentists here in Alliance clubbed together and each purchased one, thereby reducing the expense.

The number in their No. 113 catalogue is No. 35x947. Any one can by sending 42 cents and the number as given above get one of them.

Try soldering your copper disks to mandrels for cavity cutters with silver solder instead of soft solder. Makes a better job. True by holding to edge of file while revolving in hand piece of engine.

A very handy instrument for removing bands or crowns while crowning teeth is a No. 10 Dr. F. Abbott's scaler. The shape and size make it convenient to pass under the gum, and the projection on the end will lift any crown that is not cemented fast.

Try spraying the patient's mouth with glyco-thymoline full strength by aid of compressed air or ordinary sprayer after cleaning the teeth or setting a crown or bridge. Also useful after removing dam from gold fillings. The patient will thank you for it.





CORRESPONDENCE

THE ANCIENTS NOT PRACTICAL DENTISTS.

In an article published in *THE DENTAL SUMMARY*, September, 1905, page 644, by Dr. H. H. Harrison, entitled "Physician and Dentist," I see he harps upon that old belief of the ancient Egyptians filling teeth with gold, for Dr. Harrison states that "Gold fillings have been found in the teeth of the mummies of ancient Egypt." Now I would like to state that I do not believe any person has ever seen or ever will see a mummy with gold fillings in the teeth. While the ancient Egyptians might have known something of the dental art, they were not practical dentists. Although we acknowledge that in many things they excelled the present race — but dentistry was not one of them. For want of time I cannot go fully into this subject, but I will quote a few words of Professor Edwin T. Darby. Dr. Darby states: "I was in Egypt thirty years ago and spent a great deal of time in the museums and in the mummy pits looking for some evidence of ancient dentistry, but I found nothing. I took from the pits a great many mummies that had lain there for three or four thousand years, cut the bandages from their heads and examined their teeth. I found no gold filling, nor other evidences of dental operations."

The venerable dental historian, Dr. William H. Trueman, who no doubt is better versed in the History of Dentistry than any other person, states: "The ancient Egyptians were in the habit of covering the faces of their dead with gold leaf, and it is possible that whatever solution they used when embalming the dead glued this gold leaf to the labial surfaces of the anterior teeth, and that the casual observer seeing these bits of gold leaf on the teeth mistook them for gold fillings."

The belief that the ancient Egyptians filled teeth with gold no doubt has grown out of seeing these bits of gold and mistaking them for gold fillings.

WILLIAM L. J. GRIFFIN.

Philadelphia, Pa.



SUGGESTIONS

AMALGAM AND CEMENT IN COMBINATION.

F. Milton Smith, New York.

I have for some time wanted to express my appreciation and thanks to our fellow-member, Doctor Strang, for introducing the method of mixing amalgam and cement which he has recommended. I have found such mixture of the two materials to be so valuable that I think those who have not tried it would do well to do so. The use of a rather slow-setting amalgam and a quick-setting cement works best, in my estimation. The filling being mixed and introduced, in five or six minutes the filling can be shaped and margins made flush; then lightly rubbing the surface with a burnisher will cause the particles of amalgam to coalesce, giving practically an amalgam surface. This method will prevent the filling from wearing rough, at least in a great degree.

Regarding the proper proportions for this mixture, the amount of cement powder is one-half as much as the amount of filings in bulk. The filings are amalgamated first and placed in a mortar with the oxide of zinc and the two ground to almost an impalpable powder. It is then placed on the slab and mixed with the liquid of the cement, the mass then being kneaded with the fingers for a little while. A matrix should always be used in approximal cavities, and the filling inserted with pressure and a thorough burnishing over the surface makes a filling that will last much longer than cement alone.

ROUGHEN THE CAVITY SIDE OF YOUR INLAYS.

Inlays will not always remain in cavities by the force of faith alone, and neither will they always remain by the adhesive properties of cement. Get as deep anchorage as pos-

sible in your cavity preparation, and then if the inlay is of porcelain, etch the cavity side with hydrofluoric acid to roughen it. If it has sufficient bulk, groove it. With gold inlays they can almost invariably be grooved to advantage. Prepare the cavity side in such a way that the cement will take hold of it firmly. Do not depend on faith.—*Dental Review*.

REPAIRING PUNCTURES IN RUBBER DAM AFTER ADJUSTMENT.

J. V. Conzett, Dubuque, Iowa.

Take a piece of surgeon's adhesive plaster of the proper size, slightly warm it and cover the puncture. It will effectually seal the opening. I got this idea from Doctor Pherrin, of Central City, Iowa, and I believe it is original with him.—*American Dental Journal*.

A METHOD OF PLACING PORCELAIN FACINGS IN GOLD BICUSPID GROWNS.

F. L. Platt.

The buccal face of a soldered or seamless gold crown is cut out, leaving a sufficient band at the cervical border to insure strength and rigidity when the crown is finally cemented in place, and an ordinary cuspid facing is ground to approximately fit the opening. This facing is then backed up with thirty-two gauge pure gold, and should fit accurately, leaving a slight margin of the backing projecting all around the facing.

The facing and backing are then placed in position, a little pad of asbestos paper is placed over the facing to protect it from contact with the flame of the soldering lamp, and crown and facing are wired together with two or three turns of binding wire.

A little borax flux and small pieces of solder are then placed on the pins, which should be cut off short, and around the margins of the opening, and the whole crown may then be heated and soldered, without investment, over a Bunsen burner or alcohol lamp.

Enough solder should be used to stiffen the backing slightly and restore the contour of the crown so the facing will be flush with its buccal surface when finished.—*Dental Gazette*.

TO KEEP A GINGIVAL-MARGIN CAVITY DRY WITHOUT RUBBER DAM.

R. E. Sparks, Kingston, Ont.

Prepare the cavity and place a napkin in position. Saturate a little floss silk, or small, loosely-twisted thread of absorbent cotton with thin cement. Dry the cavity and pack the silk or cotton around under the gum margin. This method is often useful where the rubber and clamp is in position and the rubber is stretched and does not pass under the gum margin at the sides of the clamp.—*Dental Review*.

TREATMENT OF PAIN FOLLOWING EXTRACTION.

Chas. B. Isaacson, M. D., New York.

The retention of the pyogenic membrane is generally followed by acute pain. When a tooth with septic pericementitis is extracted the pericementum may or may not be attached to the root. As the teeth are associated with their alveoli, through the medium of a coarse, resisting fibro-cellular tissue, the chances are that as plastic exudations have taken place the pericementum will adhere to the lining membrane. The sepsis usually penetrates into the apical space, and therefore pain and inflammation, almost like the beginning of an alveolar abscess, ensue. In order to relieve this condition it is necessary to remove all clots and curet the socket as far up into the apical space as possible. For this a small blunt curet or preferably a rose bur in the dental engine should be used. As a soothing application I have found the following prescription very effectual, used on the tampon in the socket:

R. Mentholi,

Acidi Carboli

Tinct. Iodiaa*3i*.

Etheris,

Chloroformiaa*3ss*.

M.

After curetting it is necessary to irrigate the socket with some antiseptic lotion, or peroxid very dilute, or any other medicament preferred by the practitioner, and pack the socket with sterilized gauze.—*Dental Digest*.

TO PREVENT EXPANSION OF PLASTER IN SETTING.

P. B. McCullough.

If slacked lime is added to boiling water and the clear liquid decanted for use in mixing plaster of Paris, the plaster will not expand.—*Dental Brief*.

DON'T FORGET.

L. P. Haskell, Chicago.

That a lower denture, especially in the many cases of flat or ridgeless jaws, are far more liable to cause irritation than upper plates. The patient should be reminded of this fact and made to understand that it need not be endured, but can readily be relieved, as it is impossible to eat with it unless relieved.

While the irritated spot can readily be seen, unless the patient calls with the plate in the pocket, but perhaps is not easily located on the plate, place a little speck of moist whiting on the spot and put the plate in place; the transfer of white shows exactly the location.

Don't forget there are more failures from faulty occlusion than from any other cause. Do not allow the patient to leave the chair until you feel assured it is all right. Even then it is well to see the patient after the denture is settled into place and the patient is closing correctly. The use of thick articulation paper is the only positive method of securing correct results.

Don't forget that it is a great mistake to make the teeth too short. This is especially to be avoided when there is great absorption. The patient cannot use the teeth as successfully, as it throws the jaw too far forward and there is no comfortable resting place for it, to say nothing of the unsightly collapse of the lips.

Don't imagine that it is necessary in case of excessive absorption and contraction of the posterior ridge to arrange the posterior teeth directly over that ridge. It contracts the space needed for the tongue unnecessarily. Long experience has demonstrated that the denture can be used successfully with the teeth set farther out.—*Dental Brief*.

CEMENTING SURFACE OF INLAYS.

Treating the surface of a porcelain inlay, so that there will be a chemical continuity of structure when cement is applied. It has been found that zinc oxid, as available in the usual cement powder, can be so fused to a surface of porcelain that cement applied thereto will literally unite with and become continuous with the particles of zinc oxid presented. This can be accomplished for retention of an inlay, by painting into the matrix—keeping back of the edge, of course—a mixture of two parts of cement powder and three parts of the porcelain body about to be used, the merest film being the proper quantity. If the matrix be then filled with the plain porcelain and the inlay fused and completed as usual there will be presented, on stripping off the matrix, a glazed surface which can be easily broken, exposing a thin porous layer which not only gives mechanical retention similar to an etched surface, but presents zinc oxid particles with which the cement will become united.
—*Dental Register.*

CARE IN USE OF COCAIN.

Chas. B. Isaacson, M. D., New York.

Local applications of cocain and solutions to highly-inflamed tissues are reprehensible, for tissues in that condition do not absorb the medicament, and the danger of a harmful quantity of the drug being swallowed is great. Here I might offer a few suggestions, namely, that it would be advisable before using cocain hypodermically to make a few inquiries into the constitution of the patient. In Bright's disease, diabetes, and in cases of tobacco heart, cocain should be used very charily, and should be guarded against by the employment of the physiological antidotes, such as nitroglycerin, strychnin, small doses of morphin, Hoffman's anodyn and whiskey, before the drug is injected. The use of adrenalin as an adjunct to cocain has its decided merits, but as it increases arterial tension in weak hearts it is very apt to cause syncope, especially in diabetes and Bright's disease, and although the sequela from the use of this drug might be alarming, in my experience so far they have not proved fatal.—*Dental Digest.*

THE PROCESS OF CONSTRUCTION OF GOLD INLAY.

John S. Batchelor, Milwaukee, Wis.

Prepare the cavity so that the matrix will draw, having all margins slightly beveled; take a piece of 1-2000 platinum of liberal dimensions, press well into cavity with wet cotton pellets, pass a thin burnisher between the proximal walls, remove cotton, then matrix and trim surplus platinum, leaving a liberal amount overlapping margins. It makes no difference if the platinum breaks, except at margins; in that case place a small piece over the break, replace matrix in cavity; if a proximal one, use Ivory or some suitable matrix to give contour and aid in easy manipulation. Then pack the cavity with Watt's gold, preferably brick form, use care at the margins and as the gold is packed in it forces the platinum matrix to place. *Do not pack tightly*, using care not to fill quite to the masticating surface. Saliva will not affect the working of the gold. It is the packing of the crystal gold that prevents contraction.

To remove filling, use two explorers. Imbed them well, one in the proximal surface and one in the crown; withdraw the filling steadily. The object of the two explorers is to prevent rocking and bending of any borders.

Paint the platinum with a thin coat of rouge moistened with alcohol, place the filling on the soldering block and flow 22-carat solder, using a *large brush flame*. Bunde & Upmeyer, of Milwaukee, make a 22-carat hard-flowing solder which is almost the color of pure gold.

If the gold is packed right it will suck up the solder like a sponge does water; there will be considerable shrinkage of the gold; if, on the other hand, the gold retains its form the solder will not be absorbed and the filling will not be dense. Keep adding solder until the right contour is obtained, using care that there is a coat of solder over all exposed surfaces; this will obviate any tendency to porosity of the surface of the filling caused by over-condensation of the Watt's gold. Wash the rouge off with ammonia or alcohol, trim up the filling roughly on lathe, roughen the surface for cementing with fine jeweler's saw and burs. Put in cavity and drive to place with wooden stick. Finish in or out of the mouth. I use Ames' gold-inlay cement mixed thin and his flux added to liquid to retard setting.

If you follow these directions the result will be a perfect gold inlay of excellent color. After the cavity is prepared it will take from five minutes for a simple cavity to not exceeding thirty minutes for a compound one, that would take a skilled operator hours to insert with foil.

Many teeth can be saved by this method instead of crowning, giving infinitely better results.

For example, take a molar where both proximal surfaces and crown are to be restored: First make an inlay, using matrix on both mesial and distal surface, after soldering so that crown is flush with flat crown surface, swage pure gold or 22-carat cusp and sweat to inlay.

Any one who tries this method and does not succeed, if he will write me stating what trouble he has, I shall be more than pleased to help him, not only for his sake but for the sake of a suffering public.—*Dental Review*.

INVESTMENT MATERIAL.

E. H. Allen, Freeport, Ill.

About five years ago I was convinced that crowns and bridges could not be properly constructed without using one of the various investment compounds that we see advertised, but I have readopted the old style—sand and plaster—investment with very pleasing results. Some time ago I procured a peck of sand such as the cement-walk builders use and when I have occasion to invest a case I employ the following method: First add a little potassium sulphate to the water in the plaster-bowl and sift in the amount of plaster necessary for the case. After the plaster is absorbed, pour off the surplus water and stir in sand until the mixture looks like mortar that is used for plastering houses. Place this upon a glass slab and invest the case. It is better to trim off the surplus while the investment is soft, for when it becomes hard it is difficult to do so. This investment will be ready for the fire in three minutes or less and I do not know of any material that will stand as much heat and be as hard after heating. It is simple and cheap and I hope that others may take the pleasure in its use that I have had. —*Dental Review*.

A USEFUL APPLICATION FOR SORE LIPS WHILE OPERATING.**W. J. Hemphill, Dexter, Iowa.**

I find that a little collodion is very useful to apply to sore lips before beginning to operate. It takes out the soreness, protects the lips and they heal rapidly after the application. It is also useful to apply to wounds on the hands, as it reduces the danger of infection and washing will not remove it.—*Dental Review*.

PREPARING A MOLAR FOR A CROWN.**F. W. Stephan, Chicago.**

In preparing a molar for a crown, if there has been no decay at the mesial or distal surfaces the operation is very much simplified by cutting out these surfaces with a bur and making cavities. This removes a portion of enamel often very difficult to cleave, and the cavity thus made can be easily filled with amalgam, making a very strong base for the crown.—*Dental Review*.

UNSANITARY DENTURE.**N. S. Hoff, Ann Arbor, Mich.**

Rubber plates are too often inadequately vulcanized. They are made thick and clumsy, with little or no regard to the comfort of the patient and not much conception of the stress to which they will be subjected in use. Then they are vulcanized in the shortest possible time, and insufficiently to produce a hard and dense structure which will not absorb the secretions in which they are continually bathed. Many times the plates have degenerated under the rapid and excessive application of the heat, producing apparently perfect plates on the surface, but within a sponge, and in case no proper care has been taken to provide constant spring pressure while vulcanizing the rubber draws away from the teeth while hardening, leaving spaces will soon fill up with secretions to ferment and irritate the mouth, and it may be to cause a nauseating odor which no ordinary disinfection or cleansing will eradicate.—*Dental Digest*.



OHIO STATE BOARD OF DENTAL EXAMINERS.

The regular semi-annual meeting of the Ohio Board of Dental Examiners will be held in Columbus, Nov. 28, 29 and 30, '05, at the Hartman Hotel.

Applications for examination should be filed with the Secretary by Nov. 18th. For further information address,

H. C. BROWN, *Secretary*,
185 E. State St., Columbus, O.

STATE BOARD OF REGISTRATION AND EXAMINATION IN DENTISTRY.

STATE OF NEW JERSEY.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual meeting in the theoretical branches in the Assembly chamber of the State house at Trenton, N. J., on the 12th, 13th, and 14th, of December 1905. Sessions begin promptly at 9 A. M., each day. Practical operative work done in the office of Dr. C. S. Stockton, 23 Central Ave., Newark, N. J., by appointment of the examiner. Practical prosthetic work at the office of Dr. A. Irwin, 425 Cooper St., Camden, N. J., on a date assigned by the examiner.

Application must be in the hands of the secretary two weeks prior to the examination.

CHARLES A. MEEKER, D. D. S., *Secretary*,
29 Fulton St., Newark, N. J.

FIRST ANNUAL CLINIC OF THE FRATERNAL DENTAL SOCIETY OF ST. LOUIS, NOVEMBER 20-21, AT THE BARNES DENTAL COLLEGE.

Special features of the meeting will be a series of lectures on "Cavity Preparation," "Methods and Principles of Packing Gold," "Methods and Principles of Finishing Fillings," by Dr. E. K. Wedelstaedt of St. Paul.

The following well known members of the Black and Wedelstaedt Clubs will be present and clinically demonstrate "extension for preven-

tion" to its fullest extent: Drs. A. C. Searl, Owatonna, Minn., J. F. Wallace, Canton, Mo., C. W. Booth, Cedar Rapids, Iowa, J. J. Booth, Marion, Iowa, Wm. Finn, Cedar Rapids, Iowa, J. B. Pherrin, Central City, Iowa, Ed. S. Brown, Edina, Mo., W. T. Rutledge, Monroe City, Iowa, S. E. Wallace, LaBell, Mo.

PORCELAIN WORK.

Porcelain work will be fully demonstrated by Drs. F. E. Roach, Chicago, W. L. Ellerbeck, Salt Lake City, Geo. T. Banzett, Chicago, W. H. Cudworth, Milwaukee, and Craig W. Work, Ottumwa, Iowa.

Other clinics, on various subjects, will be given by Drs. W. L. Reed, Mexico, Mo., J. B. Howell, Paducah, Ky., C. L. Rose, Fargo, N. D., F. B. Lawrence, Elderado, Kan., Geo. D. Sitherwood, Bloomington, Ill., A. Gaiser, Davenport, Iowa, Fred Westerfield, St. Charles, Mo., Otto J. Fruth, St. Louis, Richard Summa, St. Louis, and others.

EXHIBITS.

The following dealers have signified their intention to be present and display: S. S. White Dental Mfg Co., Dr. Jenkins Porcelains, Klewe & Co., A. C. Clark & Co., St. Louis Dental Mfg. Co., John Nolde Dental Mfg. Co., Hisey Dental Mfg. Co., Denthol Chemical Co., Lambert Pharmacal Co., Lee S. Smith & Sons, Century Dental Laboratory Co., W. M. Berry Dental Laboratory Co., Sanitol Chemical Co., R. C. Brophy & Co., Keeton Williams Gold Co., Horlicks Food Co., Kress & Owens, Oakland Chemical Co., McKesson and Robbins, and others.

RAILROAD RATES.

The Western Passenger Association and South Western Excursion Bureau have granted a rate of *one and one-third* fare—plus 25 cents validation fee—certificate plan for this meeting for the states of Missouri, Iowa, Minnesota, Kansas, Nebraska, and Illinois, on and west of the line of the Chicago and East Illinois R. R.

HOTEL HEADQUARTERS.

At the Jefferson Hotel, 12th and Locust Sts. Rooms for one, without bath, \$1.50 and up, rooms with bath \$2.50 and up. Rooms for two, without bath, \$2.00 and up, rooms with bath \$3.00 and up.

EXHIBIT SPACE.

Exhibit space may be obtained by application to the Secretary. If you have a clinic to give, send your name at once to the Supervisor of Clinics.

A cordial invitation is extended to the profession to be present and assist in making this meeting, limited in scope but limitless in importance, the best ever held in this section.

D. O. M. Le Cron, Missouri Trust Bldg., Supervisor of Clinics.
S. H. Voyles, Secretary, No. 306 Humbolt Bldg.
Burton Lee Thorpe, President.

OHIO STATE DENTAL SOCIETY.

The fortieth annual meeting of the Ohio State Dental Society will be held in the Great Southern Hotel, Columbus, Ohio, December 5, 6 and 7, 1905. An exceptionally strong program of papers and clinics has been provided, and we have every assurance of a highly successful meeting. Come!

F. R. CHAPMAN, *Sec'y*, 305 Schultz Building,
Columbus, Ohio.

INSTITUTE OF DENTAL PEDAGOGICS.

The annual meeting of the Institute of Dental Pedagogics will be held in the Fifth Avenue Hotel, New York, December 28, 29 and 30. The following subjects will be discussed:

Anesthesia, Extraction, Operative Technic, Prosthetic Technic, Crown and Bridge Technic, Orthodontia Technic, Porcelain Technic, Chemistry, Anatomy and Oral Surgery, Teaching in the Infirmary.

The main idea of the meeting will be, "How Should These Subjects Be Presented to a Dental Student." This will be the most important dental meeting of the year, especially for teachers. As far as possible every Demonstrator, as well as the Professors, should make an effort to be present.

W. E. WILLMOTT, *Sec'y*.



AFTERMATH

PERSONAL AND MISCELLANY.

Change of Location.—Dr. Bruner, formerly of Sioux Falls, Iowa, has moved to Fort Dodge, Iowa.

Loss by Death.—Dr. T. N. Patterson and wife, New Washington, Ohio, mourn the loss of their six year old daughter who died October 1, 1905.

Will Practice Orthodontia.—Dr. Burt Abell, formerly of Albion, Mich., has located in Toledo, Ohio, and will practice orthodontia exclusively.

Loss by Fire.—Dental office of Dr. F. A. Woodmansee of Ft. Madison, Iowa, was destroyed by fire September 25. Loss, \$2,100. Insurance \$1,200.

Dentist Appointed Health Officer.—Dr. W. T. Slayton of Morrisville has been appointed health officer for the town of Morristown and village of Morrisville.

Dentist Hurt in Runaway.—Dr. M. K. Pennington, of London, Ky., was thrown from a buggy in a runaway and fatally injured. Dr. Pennington had been operated on eleven times for hip disease.

Force of Habit.—Higson: Who is that new political boss in the third district who has such a great pull?

Jigson: I forget his name, but he used to be a dentist.

Afflicted with Rheumatism.—Dr. E. E. Royer, Akron, Ohio, who has been so badly afflicted with rheumatism as to be unable to practice since last January, has gone to Mt. Clemens, Mich., for relief.

Pennsylvania Dental Examiners Retained.—Dr. C. B. Bratt, Allegheny, and Dr. G. W. Klump, of Williamsport, have been reappointed members of the State Board of Dental Examiners by Governor Pennypacker.

Dental Examiner Appointed.—Gov. Warner of Michigan has appointed Dr. A. L. Le Gro of Three Rivers to succeed Dr. Charles J. Gray of Petoskey on the state board of dental examiners, and will become secretary.

Dr. J. Lowe Young will Specialize:—Dr. J. Lowe Young, formerly of Detroit, Mich., announces to the profession that he will devote himself to the practice of orthodontia exclusively at 63 W. 49th St., New York City.

Sentenced for five years for Stealing Teeth.—Albert Hall, a negro, Graysville, Tenn., has been sentenced five years in prison for breaking open a show case and stealing gold crowns, bridges, etc., belonging to a dentist.

Illinois District Dental Society Elect Officers:—Dr. J. W. March of Warsaw, president; Dr. O. M. Daymude, Monmouth, vice president; Dr. H. W. McMillan of Rosedale, secretary; Dr. J. M. Evey of Monmouth, treasurer.

Iowa State Dental Society Proceedings.—We acknowledge receipt of these proceedings for 1905. The publication committee is C. W. Brunner, Waterloo, Iowa, P. H. Jones, Clear Lake, Ia., and G. N. Beemer, Mason City, Ia.

Died in Dentist's Chair.—Mrs. George Rauscher of Rochester, N. Y., died September 21, after taking chloroform for the extraction of fourteen teeth. When four teeth had been extracted it was discovered that she was dead.

Decayed Tooth Causes Death.—Rev. Edw. R. Denny of New Albany, Ind., died September 21, of blood poisoning from a decayed tooth. He had been suffering from toothache for several weeks but paid no attention to it until blood poisoning developed.

Northeast Kansas Dentists to Organize.—A movement is on foot for the organization of the Northeast Kansas Dental Association. Every other district in the state has an organization which forms a component part of the state society except the northeast corner.

Concussion of the Brain.—Dr. Eller Whitman of Corunna, Mich., professor in the dental department of the Univ. of Michigan is reported to have fallen from his bicycle and sustained a slight concussion of the brain. One ear was nearly severed from his head by the fall. Dr. Whitman was unconscious two hours.

American Lady Dentist goes to Germany.—Dr. Gillette Hayden, Columbus, Ohio, has accepted a position as associate to Dr. McBride, who succeeds Dr. N. S. Jenkins, Dresden, Germany. Dr. Hayden will leave the United States about the first of December, and will devote a large part of her time to prophylactic treatment in Dr. McBride's office.

To Locate in Brazil.—Dr. R. B. Prettyman of Rockford, Ill., has sold his dental practice to Dr. C. B. Mead of Chicago. Dr. Prettyman will leave for Sao Paulo, Brazil, where he practiced before locating in Rockford nearly three years ago. Dr. G. W. King, who has been associated with Dr. Prettyman will accompany him to South America.

A Cure-All.—Biffkins: I wish I could get rid of this horrible toothache!

Sniffkins: When I have it I get rid of it very simply. A kiss from my sweetheart, and it's gone.

"Is that so? Do you mind giving me her address?" Fliegende Blaetter.

Married.—Dr. J. K. Young of Cambridge, Ohio and Miss Hettie Guthrie of Bloomfield, Ohio married September 20. Dr. C. S. Smith of Spring City, Pa., and Miss Anna McClellan of Latrobe, Pa., married September 22. Dr. Charles E. Ressler of Allentown, Pa., and Miss Katie M. Reader of Augustaville, Pa., married September 30. Clarence W. Young, Allegan, Mich., and Miss Effa M. Green, were married, September 27th.

American Society of Orthodontists.—At the recent meeting held in Chicago, officers for the ensuing year were elected as follows: President, Dr. R. Ottolengni, New York; Vice President, Dr. H. A. Pullen, Buffalo; Secretary, Dr. Anna Hopkins, St. Louis; Board of Censors, Dr. E. H. Angle, St. Louis, Dr. F. M. Casto, Cleveland, Dr. M. T. Watson, Detroit. The next meeting will probably be held in New York City in October, 1906.

Dentist Wins Suit.—Taking out her set of false teeth in the courtroom and laying them on a table with a \$20 bill, pretty Miss Lena Lorenz paid a judgment given Dr. Williams of Appleton, Wis., after a trial before Justice Clinton W. Hunt.

Williams sued her for the price of the teeth. She fought the case on the ground that the teeth were "ugly."

"Why," she said, "nobody would kiss me when I wore them."

Dr. Williams was given a judgment of \$20 and the possession of the teeth. Miss Lorenz paid spot cash and the teeth.

Bodies Identified by Teeth.—The body of George R. Griswold of Des Moines, Iowa., was positively identified by his teeth. Dr. F. W. Knott, the dentist who was the last to examine Griswold's teeth, states that these of the corpse are undoubtedly Griswold's. The excellent condition of all the teeth with the exception of a defective bicuspid known to have been the only flaw in Griswold's teeth proves conclusively that the body is Griswold's. Bones of a human being, discovered recently near Appleton, Wis., have been identified by dentists, by records of dental work, as those of M. McCarty supposed to have been murdered some time ago.

Deaths.—Dr. Henry F. Boutler of South Haven, Mich., died at his Southern home in Pensacola, Fla., October 3, of yellow fever. Dr. Joseph P. Kirby of Bridgeton, Pa., died September 23, of heart disease. Dr. George E. Nettleton of New Haven, Conn., died suddenly at his summer home at Bradleys Point, September 6, age 58 years. Dr. W. P. English of Vacaville, Cal., died September 7, of heart disease. Age 35 years. Dr. Homer J. Balcom of Buffalo, N. Y.,

died September 16, and Dr. Lafayette Balcom also of Buffalo, died September 19. The brothers were buried together. Dr. M. S. Beebe of Centralia, Wash., died September 28.. Dr. Dodge of Vera Cruz, Mexico, died September 25. He was formerly at Palo Alto, Cal.

Recent Patents of Interest to Dentists.—797684, Dental instrument, Wm. E. Harper, Chicago, Ill. 799495, Porcelain tooth-facing, Leon L. Poston, Council Bluffs, Iowa. 799972, Dental chair, Frank E. Case, Canton, Ohio. 799724, Dental tool, Adam W. Feltmann, Chicago, Ill. 800093, Dental device, Wm. S. Filley, Montpelier, Ohio. 799937, Dental crown or plate swaking device, Joseph A. Reid, San Francisco, Cal. 800033, Stand for tooth and nail brushes, tobacco-pipes, etc., Wilhelm Ullrich, Offenbach-on-the-Main, Germany. 799811, Obtunding apparatus, Crittenden Van Wyck, San Francisco, Cal. Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendal Building, Washington, D. C.

A Good Suggestion.—Dr. J. H. Graham, of Lead, S. D., sends the following suggestion: Dentists, as a rule, subscribe for from three to six dental journals and in reading the same come across many useful hints or suggestions, which we feel we would like to try, should occasion present. But having no case at the time suitable to demonstrate the value of the suggestion, or from some other cause we lay the journal aside and the matter passes out of our mind. It has been a custom with me for a number of years to keep a scrap book, and when I come across a suggestion in a dental journal that appeals to me, as of value, I cut it out and paste it in the same. In this way I get what appeals to me as the meat of our dental literature, boiled down for quick and easy reference.

Fined for Practicing without a License.—At the September term of the City Court of McRae, in Telfair county, Ga., W. J. Williams was convicted in two cases for practising dentistry without license.

Only two cases were tried and the fine in each case was placed at two hundred (\$200.00) dollars and costs, making a total of four hundred and seventy-five (\$475.00) dollars.

The court agreed to nol pross all other cases, save two (there being ten or twelve cases in all), on condition that the defendant sign a written agreement that he would not practice dentistry in the State of Georgia until he had acquired a license, also, acknowledging that he now has no license to practice dentistry in the State.

In the event of his failing to carry out his agreement, the other two cases will be pushed to a conclusion.

Williams was fined two hundred (\$200.00) dollars and costs in July, 1902 for the same offense.

Burglaries.—Thieves entered the offices of Drs. B. F. Allen and Nelson & Tift of Glencoe, Minn., by climbing through the transom in both offices. \$47.00 worth of gold was taken from Dr. Allen's office and \$75.00 worth from the office of Nelson & Tift.

Burglars entered the office of Dr. Geo. A. Foster of New Albany, Ky., and stole gold leaf valued at \$35.00. Entrance was gained by means of a skeleton key.

A new dental chair was stolen from Dr. A. S. Billings & Son of Omaha, Neb. They left the chair in an alley by their office and when they went to look for it some one had carted it away.

Sneak thieves entered the office of Dr. Charles J. Spriggs of Utica, N. Y., and took \$15.00 worth of gold. Dr. J. W. McKinnion's office of York City, Pa., was entered and gold amounting to \$100.00 taken. The offices of Drs. Thos. S. Wilcox and C. W. Huntington of Williamsport, Pa., were entered and \$25.00 worth of gold taken in each office. Dr. H. V. McGregor, Atlantic, Iowa lost \$50.00 worth of materials by theft. Dr. Louis Kraft, Edwardsville, Ill., loss \$30.00. Dr. B. F. Gilmer, Dennison, Texas, loss \$25.00.

The Sanitol Girl.—We have just received from The Sanitol Chemical Laboratory Company, manufacturers of the Sanitol Tooth and Toilet preparations a beautiful picture of The Sanitol Girl. It is 6x11 inches and mounted on heavy card board with rounded corners and makes a handsome desk ornament.

This picture is an excellent example of the finest lithographic are produced in America. On the back appears a Calendar for two years and a description of all the Sanitol preparations. The Sanitol Girl is pictured as just coming from her bath and the appropriate title "Now for Sanitol" together with her attractive smile and bewitching posture indicates that she is all ready to use Sanitol, Best for the Teeth.

We do not remember that the dental profession have ever before been presented with such an attractive picture and this is a specimen of the fine advertising work the Sanitol people are doing. Copies, we understand, have been sent to every dentist in America and additional copies can be had by addressing the Company.



REGULAR CONTRIBUTIONS

RETENTION OF ARTIFICIAL DENTURES.*

BY GEORGE H. WILSON, D. D. S., CLEVELAND, OHIO
FIFTH PAPER.

The statement has been made that the instability of artificial dentures increases in the ratio to the number of teeth supplied. This assertion is so near the truth, and its application to practice so obviously to the advantage of the public, that we shall not enumerate the exceptions.

It is not the object of this paper to in any way discuss that class of partial dentures known as "bridge-work;" only to say that there is a large class of cases where the best interests of the patient will be subserved with a plate denture. In all cases the cosmetic effects of a plate are equal to, and in many places far superior to, a bridge.

A good rule is to consider that a natural tooth that is, or can be made, comfortable and useful to the patient, is far more valuable than an artificial one. The conditions may be such that a remaining tooth or two in the upper maxillæ may be more of a detriment to the wearer of an artificial denture than their loss; but it is always a subject for serious thought.

Before recommending a partial denture the mechanical principle of leverage should have been taken into consideration, thus assuring the greatest stability with the least injury to the contiguous tissues.

In a few cases the partial dentures may be retained by adhesion, by contact, or by the spring plate, but usually the best result is obtained by the use of clasps.

*The drawings here used for illustration are the work of Dr. Harris R. C. Wilson.

There is an unjust prejudice in the minds of some patients and also dentists against the use of clasps. This is probably due to an improper knowledge of their advantages and disadvantages; also an insufficient knowledge of the mechanical principles involved and their practical application.

The advantages of the clasp may be summed up in the statement that there is no method by which a partial plate denture can be retained with so much comfort and usefulness to the patient as with clasps. This implies that the conditions are favorable and the method is properly applied.

The disadvantages are: That in some cases the method should not be used because the remaining teeth are not healthful or favorably located and may be of improper conformation. This last condition must preclude clasps. The principal argument used by those who object to the use of clasps is, that they cause disintegration of the teeth to which they are applied. The writer emphatically states that the cases in which this is necessarily so, are very few indeed; but that most of these unfortunate occurrences are due to the imperfect knowledge and manipulation of the dentist. It is awe inspiring to see how some of these men who throw up their hands in holy horror at the idea of clasping a tooth, will in a few moments "disintegrate" a sound tooth to the extent of removing the whole crown and pulp for the sake of attaching a bridge. Some argue that a tooth should never be clasped until it has been crowned. Why not wait until the necessity arises and then fill or crown as may be necessary? "Consistency is a jewel." The question should always be, how can a patient derive the greatest amount of service from a tooth? not, how can he preserve the tooth the longest? A tooth is of value only as it is of service.

CLASPS.

There are various forms of clasps. A Stay Clasp is one that rests upon one side and perhaps two angles of a tooth, and is used as a bearing for a spring plate. A Spring Clasp is one that rests upon at least two sides and three angles of a tooth. Rigid Clasps are clamping devices that partially telescope specially constructed artificial crowns. A Ferrule is a continuous band about a tooth.

STAY CLASPS.

The stay clasp is represented in vulcanite work by the thickened edge of the spring plate. The name is especially applied to short clasps used to stay metal plates. This means may be used to support a spring plate denture carrying any or all of the six anterior teeth, provided the bicuspid and molars are of proper form and alinement. The one essential factor for retaining a denture by the spring plate method is that the distance across the vault from the bicuspid upon one side to the bicuspid upon the other side of the arch, shall be greater at the gum margin than at some other portion of the crowns of these teeth. When the remaining teeth have the conformation and alinement



Fig. I.

implied in the preceding statement, a plate of a "horse-shoe" shape, having perfectly adapted thickened edges for vulcanite (see Fig. I*) or metal stay clasps (Fig. II) may be sprung over the bulbous portion of the teeth. It will then rest in contact with the teeth, but without lateral pressure, and can only be removed by springing the heels of the plate inward. Should one or more of the retaining teeth be tilted lingually, it will interfere with this method of retention. Perfect adaptation to the

*The drawings here used for illustration are the work of Dr. Harris R. C. Wilson.

cervical third of the lingual surface is essential, and cannot be obtained, or at least retained, if there is an excessive inclining of some of the teeth. There are exceptional cases where adaptation can be made to the middle third, without contact with the cervical third. This method is especially advisable when the conditions are favorable and there are no spaces for spring clasps, or the spring clasps would be unsightly.

SPRING CLASPS.

Probably the principal reasons for the condemnation of the spring clasp by so many dentists, are, a lack of appreciation of the physical laws underlying its use and construction, and the manipulative ability to properly adjust them even after the

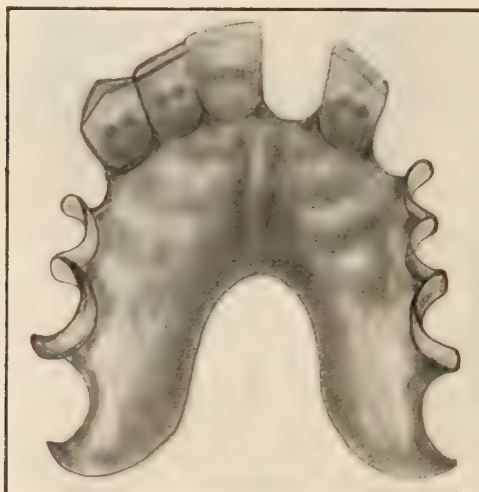


Fig. II.

principles involved are comprehended. Doubtless there is no place in dentistry where there is so varied an application of the physical laws of leverage as in the retention of artificial dentures; both full and partial cases.

THE FORM OF TOOTH FOR SPRING CLASPS.

What is commonly called a bell-shaped tooth is the ideal form. (See Fig. III). The greatest diameter of such teeth is

from one-half to two-thirds the distance from the gum line, or the gingiva where there is recession of gum tissue, to the morsal surface of the tooth. This being true, it follows that bicuspid and some of the molars only, are suitable for clasps; and these must be of more or less pronounced nervous temperament type.

CHOICE OF TEETH FOR CLASPS.

Conditions permitting, the first choice for a tooth to clasp is the second bicuspid, the second choice is the first molar and the last choice in the first bicuspid. Any other placing of clasps is not ideal, and will be resorted to only because of necessity. Clasps may be placed upon third molars and cuspids or one of each; but they will be so placed because there is no other alternative.

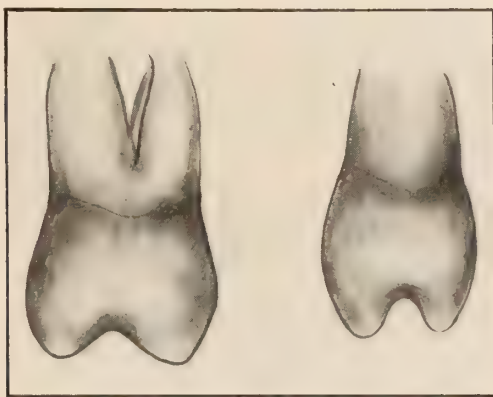


Fig. III.

THE PORTION OF THE CIRCUMFERENCE OF THE TOOTH CLASPED.

The clasp should cover two sides and three angles of the tooth (see Fig. IV); and be placed upon the distal and lingual surfaces of the bicuspid and the mesial and lingual surfaces of the molars. By this arrangement the clasps are placed at the *center of leverage* and as inconspicuously as possible.

THE LONGITUDINAL PORTION OF THE TOOTH CLASPED.

The pressure must be upon the incline toward the cervix (see Fig. V-a). Should the excess pressure be upon the incline

toward the mesial end of the tooth, the plate will be displaced [Fig. V-b]. Therefore the clasp is placed over the middle third of the crown of the tooth. Often the tooth is not an ideal one and is so formed that it becomes necessary, if a clasp is to be used, to carry it to, or even below the free margin of the gum. These are the cases wherein there is danger of disintegration of the clasped tooth. Some teeth thus clasped that are of a very dense nature and not prone to decay, may become quite sensitive; which can usually be overcome by applying silver nitrate 50% solution. Should the tooth belong to the class commonly

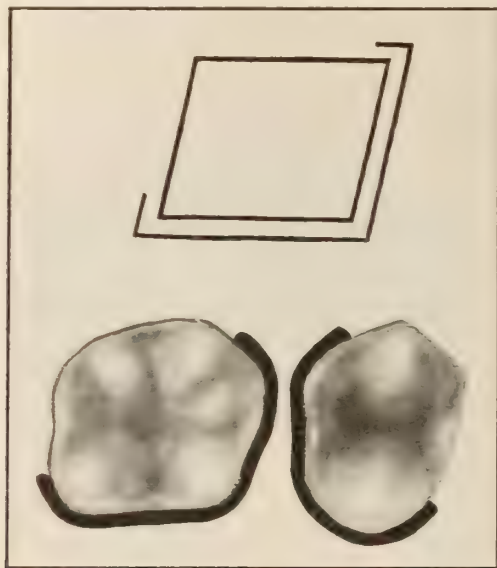


Fig IV.

called soft and chalky, and the secretion be in an abnormal condition it may disintegrate very rapidly; the tooth should then be filled or crowned as may be indicated. It is not often we have all these untoward conditions, therefore the method should not be condemned because of these exceptional cases. Where the teeth are of suitable length and form, even though the structure may be poor and the secretion vitiated, if the clasps

are properly made, placed and cleansed, there will be very little danger of decay. In all cases it is best to keep the clasp as far from the gum as conditions will permit.

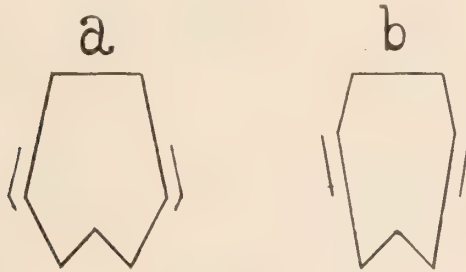


Fig. V.

(TO BE CONTINUED).



WHY I USE PORCELAIN.*

BY CRAIG M. WORK, D. D. S., OTTUMWA, IOWA.

The progress which has been made by the members of the dental profession in behalf of humanity in the past few years is unprecedented, and no other branch of the profession which practices the healing art, has made so great advancement as has the dental branch.

This great advancement has been brought about by no one man or set of men in particular, but it has been the improvement of one man's ideas by another and another, and so on until we all are, or should be, responsible for some of the dignity which the dental profession now assumes.

While the incentive for improvement has been only the comfort of mankind, the lines on which it has been carried out have been many. For instance, in orthodontia, the methods of today would put to shame those used a few years ago, and the oral surgeon has improved the methods in his line until we are not able to circumscribe his powers. In the prosthetic branch the extent of improvement has been wonderful, but to my mind the greatest advancement has been made in the branch known as operative dentistry, or that branch which pertains to the saving of the natural teeth. In this branch the improvement in the methods and manner in which cavities are prepared for the reception of the different filling materials is only surpassed by the knowledge we have gained in the preparation and manipulation of the several materials we now use in this branch of the art. And it is of one of these materials and its use in this branch of the science which I wish to talk about to you today. I refer to porcelain

Porcelain is no new material in the hands of the dentist, for it has been used for years in the manufacture of artificial teeth, and it has been used for the filling of teeth for at least thirty years and perhaps longer, but until lately for the latter purpose, by a limited number of dentists only. However, of late years many more of the members of the profession, seeing a great need for something better with which to save teeth than the metals, have taken up the study of porcelain and are now using it with great satisfaction to themselves and to those whom they serve.

*Read before the Nebraska State Dental Society, May, 1905.

THE FIRST PORCELAIN FILLINGS.

The first porcelain fillings we have any account of were ground from artificial teeth to fit the cavity and were anchored in position and the joint corked with gold-foil, and while we can all see the great amount of skill it would require to enable one to make a good filling in this way, yet the fillings did good service and were a source of great pride to the gentlemen who made them.

Afterward some members of the profession ground inlays from artificial teeth and from blocks of porcelain to fit the cavity they had previously prepared, and cemented them in much in the same way we cement our inlays now, and while we can see how crude these inlays must have been, yet it was the best method that was known at that time.

While, as we have stated before, porcelain has been used by some dentists, and successfully, for quite a number of years, it is only of late years that this wonderful substance has become so popular as a material with which to restore the lost portions of natural teeth, and this popularity, I think, is greatly due to the results obtained by the pioneers in its use, and to the manufacturer in giving us the material in such convenient form for our use, as well as furnishing us with convenient apparatus with which to bake it. I am of the opinion that few of us who now make porcelain inlays would be as enthusiastic about it if we had to pulverize old teeth to get out material and then bake it in a coke furnace.

It is not our purpose to deal with the chemical composition and method of preparation of porcelain in this paper, but rather to speak of some of its physical properties and its methods of manipulation, as well as its advantages over other filling materials now used by us.

The latter part of the above statement may lead some of you to think that I consider porcelain to be the only material the dentist needs in his efforts to save teeth, which would be an entirely ignorant opinion, for I believe there are many places where any other material would serve better than would porcelain, but I also believe that those places become fewer as we acquire skill in its use, just as the need for amalgam diminishes as the operator acquires skill in the manipulation of gold.

WHEN INADVISABLE.

On account of the brittleness of porcelain I would not advise its use in molar teeth when the margins of the cavity are exposed to the stress of mastication, nor would I advise its use in bicuspid teeth when the margins are so exposed, but if I wanted to use this material in a bicuspid or molar, I would so prepare the cavity that the margin of the inlay would be carried beyond the area of liability, for in most of the cases presented to you for restoration, the tooth is decomposed to such an extent that you find it necessary to protect the frail walls by grinding away the cusps and replacing them with the filling, especially is this true of the bicuspid teeth. However dangerous this practice may seem, some of the most satisfactory inlays we have made are in bicuspid teeth, when after from one to four years of service the margins are still perfect and the tooth apparently in as high a state of preservation as when the restoration was made.

WHEN ADVISABLE.

For cavities in the six anterior teeth we find porcelain more strongly indicated than those in the posterior teeth, and while it is not necessary, if we care anything for the esthetic effect of our operation, we are forced to use porcelain, consequently our attention is more strongly centered in these teeth.

Of the cavities presenting themselves in the six anterior teeth, those known as labial cavities demand the use of porcelain more than any other. Next in importance comes the simple proximal cavity, and although we see the need from an esthetic point of view for filling the proximal cavities which involves the incisal with this material, we have to take into consideration the amount of stress to be brought to bear, and the direction in which it will be applied, before we can safely decide what material may be used in restoration.

The first-mentioned class of cavities are the most difficult to contend with on account of their extreme sensitiveness, and the difficulty we encounter in getting a true-fitting matrix is only surpassed by the difficulty we experience in getting the inlay shaded so that when it is set the light will not be reflected back on the cement.

The second class, or the simple proximals, are not so difficult to restore, if plenty of space is obtained and the cavity prepared in a manner that will permit the matrix being drawn in one direction. It is not so difficult to burnish a matrix for this kind of cavity, neither does the light problem enter so strongly into its final effect.

The third class, those including the incisal, are more easily prepared and less separation is necessary, as the walls of the cavity may be made parallel with the long axis of the tooth and the matrix removed with less liability of distortion than in any other.

PREPARATION OF CAVITY.

In preparing any cavity for an inlay, the thing of most importance is the seating of the cavity, and this must be flat: the walls must be flat and as near at right-angles to the seat as is possible for them to be made. Flat planes should be obtained to assure the strain when stress is applied and the margins square and never beveled as they are for gold fillings. Care should be taken that there are no undercuts to distort the matrix in its removal, and only in this latter respect does the preparation of a cavity for an inlay and one for a gold filling differ greatly. Therefore, any idea for retention you may have must be carried out with these facts in view.

THE MATRIX.

In making a matrix, the kind of metal to be used depends on the kind of porcelain the inlay is to be made of. If low-fusing body is chosen, the matrix may be made of gold, but if high-fusing body is to be used, we must of necessity, take platinum-foil for our matrix, but there is little difference in the manipulation of these metals and the methods used for one may be used for the other.

For the matrix, choose a piece of metal large enough to go considerably beyond the margins of the cavity and begin the forming by working the metal against the deepest portion of the cavity, and from this point work the metal against the cavity walls from the center to the margins. After this is done, bend the overlapping portions down on the tooth and burnish the margins and the over-plus against the tooth with cotton pellets

forced tightly into the cavity, and with cotton pellets held in the pliers. The matrix, being now rudely formed, take it out and trim it to suit the case, then place it in the cavity again and burnish with cotton pellets as before, and follow this with the metal burnisher, being sure to work out all angles and retention grooves first before attending to the margins. Finish the burnishing by holding cotton tape tightly over the margins of the matrix and burnishing on this until all parts of the matrix fit against the tooth exactly.

The metal should never be annealed and the matrix never introduced into the cavity after the final burnishing, as it is too easy a matter to distort the matrix in so doing. The next step is choosing the colors to be used in the inlay, and this can only be done successfully by long experience and we know of no way to give you any light on this subject other than to give you Doctor Reeve's injunction, to look for underlying colors.

BUILDING AND BAKING.

After the colors are chosen, the building and baking absorbs our attention and this is the important part of the process, for no matter how well you have prepared the cavity and formed the matrix, no matter how accurately you have selected the colors, you will, if proper precaution be not taken, distort the matrix and cause failure in the result. It must always be kept in mind that in fusing, porcelain attempts to assume a globular form, and to prevent this action from pulling the matrix it is necessary to bake only a small portion on at first, and exert care in baking to see that the first building is carried to a full glaze. If this is done the subsequent bakings are not liable to draw the metal.

The proper point to which to carry the fusing is another thing which you will have to learn by experience, but I prefer to have porcelain a little over-fused than to have it under-fused, for in the later case it is liable to be porous and change color in time.

As the setting of inlays will be brought out in another paper to be read before you and the properties of cements treated so much more intelligently than I have power to do, I will not speak of them. And now since the subject, "Why I Use Porce-

lain'' may have seemed to have been ignored altogether in this paper, I will tell you why it is.

My main reason for the use of porcelain is the esthetic effect in the patient's mouth. How many beautiful faces become vulgar and repulsive when a smile permits the display of large gold fillings or a gold crown or a wide gold band over a Richmond crown, and perhaps all of these. Another reason for using porcelain is the extreme kindliness with which gum tissue takes to porcelain, and to prove this you have but to examine the gums about labial cavities which have been filled with gold and those which have been filled with porcelain.

Still another reason for my using this material is the ease the patient experiences compared with the use of gold—no malleting, no long sitting with rubber dam on and mouth in an uncomfortable position.

The above reasons for the use of porcelain would seem to be sufficient, but there is still another one and that is the advantage an inlay, gold or porcelain, has over a built-up filling, or one made in the mouth, which is the lessened liability of leakage at the margins and a consequent failure of the operation.

In finishing my remarks, I admonish you who have not tried this method of saving teeth to take up the work as soon as you go home, and give your patients the service they demand and deserve, and in so doing you will find that you have yet to learn the most fascinating, as well as the most gratifying, method of saving some of the natural teeth, and one which will remunerate you in a financial way if you learn to do it well.



METHOD OF RESETTING AN UPPER DENTURE WHEN
THE BITE IS SATISFASTORY.

BY DR. F. H. WILLIAMS, BLOOMVILLE, OHIO.

Mix a medium sized batch of plaster and pour over lower bow of articulator on glass slab and place the plate to be reset, (with parts in position), on the soft plaster, sinking it about one half the length of the porcelains on labial and buccal surfaces. Procure plaster model in the usual manner and place it in the old plate and with upper bow in position pour on plaster to attach model to bow. After it has set remove model from plate by opening the jaws of articulator and by a little careful manipulation the plate can be removed from the plaster. Now take off the teeth and replace them in their respective places in the plaster on articulator. Apply base plate wax in usual manner and trim to desired size. (This can be found by tracing the outline of the old plate before removing from the model). Close the articulator, flow wax around labial and buccal surfaces, attaching the teeth to base plate, open the articulator carefully, wax up inside and finish by waxing up outside and the plate is ready for investment.

By this method you furnish your patient with a new plate with identically the same bite as the old one, save yourself the time and trouble of taking a wax bite, setting up the teeth, and trying them in the mouth, and can have the plate ready for investment in less than an hour from the time of taking the impression, and the result has always been with me "It's the best fitting plate I ever had." I think simply because the patient does not have to become accustomed to a different bite.



THE PREPARATION OF A CAVITY TO OBTAIN AN ACCURATE MATRIX FOR STRENGTH AND PERMANENCY OF A PORCELAIN INLAY.*

BY W. H. UPJOHN, D. D. S., LAFAYETTE, INDIANA.

The subject of a porcelain inlay is yet to be settled as to its permanency by many doubting Thomases. When it does become universally adopted, it will do much to raise the standard of our much loved dental profession.

The five years past have indicated to us the progress of the next five. As professional men and women, we are in the world of progress to show that we are holding first place, with the progressive.

Among the many subjects in dentistry that are new and being brought into use very fast, is the art of porcelain inlay work. In this paper there will be brought out a few initiatory points for inlay work, in view of helping those who have done some work or studied on this line previous to taking it up practically in the near future.

In building a house, for comparison, we see to it that a carefully prepared foundation is obtained, before the framework is built. On the foundation and framework, depends a great deal the permanency of the building. The proper preparation being made, the mechanic and artist can proceed with their work, with the confidence that it will stand the test of time.

With inlay work the first important step is the preparation of the cavity and the foundation properly prepared, with the view of getting a good accurate framework which is the matrix, to enable the mechanic and artist to build up and carve the inlay.

We must take into consideration the occlusion in the cavity preparation for an inlay, namely, to grind the cavity parallel with the enamel rods on the occlusal surface, also the incisal edges. When we vary from this rule there is danger of the enamel breaking away next to the inlay, which places the porcelain artist in an embarrassing position, especially if in the incisal teeth. Never finish a cavity at the point of a cusp for an inlay, as both inlay and enamel would break away in this case, in mastication. Finish on one side of the cusp, or sacrifice it entirely to a depth sufficient to give the over-lapping inlay plenty of strength.

*Read before the Indiana State Dental Society, June, 1905.

On incisal edges where they are thin, it is deemed advisable to make a step cavity over the incisal edge with a reverse curve for anchorage, avoiding perfectly square steps in view of getting an accurate matrix. A slight step can be cut on the lingual surface for this form of cavity for protection against the pressure of the occluding teeth.

ANCHORAGE.

On the subject of anchorage for inlays there is a rule that holds good in most all forms of cavities. There should, most always, be two points of anchorage. For approximal cavities in the incisal teeth including the cutting edge, a slight groove on the gum margin and a step and groove on the lingual to the incisal edge.

Approximal cavities with the incisal edges in good condition are prepared from the lingual portion of the teeth with a groove on the lingual surface, with parallel walls towards the labial, to form a mortise.

For the half-moon shaped cavities, in incisal edges, cut a half circle groove to correspond with the cavity. Labial and buccal cavities need no more anchorage than the solid slightly obtuse angle walls give; except the grooves cut after the inlay is completed, before cementing. Approximal cavities of molars and bicuspid are prepared with parallel walls and slight grooves with a flat bottom. Where the approximal occlusal cavities are found, a step cavity is indicated when much of the tooth is gone. When the whole of the lingual or buccal portion of the molars and bicuspid are gone the step cavity with grooves at the gum margin and occlusive part of the cavity are indicated.

Where the restoration of incisal edges is indicated, platinum pins should be used for anchorage and for additional anchorage, a small groove is cut from the mesial and the distal on the incisal edge of the tooth within one-sixteenth of an inch from the approximal surfaces, and at each end of the groove a hole one-sixteenth of an inch in depth drilled a size larger than the pins used, so that they will not bind in drawing. The length of the pin to extend into the porcelain depends on the size of the restoration which will be left to the judgment of the operator. The best mode of operating to get the matrix and pins into the proper position, after the incisal edge is ready with the groove and holes drilled, cut the pins the desired length, place them

aside, and burnish or swage the matrix; when completed, punch holes with a sharp pointed instrument a size smaller than the pins so that they will fit tight in the matrix. Now place the pins through the matrix into the holes in the tooth; secure with sticky wax and remove the matrix and pins carefully and invest in powdered asbestos mixed with water or alcohol, on a platinum or fire-clay slab. When dry and the sticky wax is burned off, cool and proceed to build up with the foundation body around the pins, dry and bake to high biscuit; when cool, build up the second time in the groove and over the pins as high as the foundation body is desired and bake to a high glaze. Then finish with the enamel body without removing the same from the investment. Unless in doubt about the outer edge of the matrix or the contouring, then it can be removed and fitted into the tooth before the final baking.

INCISOR RESTORATIONS.

There is another form of restoration that I wish to speak of before going further and that is where incisors have a large corner broken off by accident and the nerve still alive; is to prepare the approximal corner for one platinum pin, and a groove at the remaining corner of the tooth.

The platinum pins used for porcelain restorations should be the diameter of long pin teeth used for bridge work. Any heavier would weaken the porcelain. Where step cavities are used for incisors, bicuspid or molars, the reverse curves are much stronger and easier of access for the inlay than right angles. Several of our leading porcelain workers in finishing cavities where the inlay shows on the labial surface, to produce a better joint and hide the line of cement, always very prominent when first cemented, advise grinding the labial edge of the enamel to a slight acute angle, and in placing the inlay in from the lingual portion of the cavity the inlay and enamel edges are going to wedge closer together than where finished without an acute angle from the lingual portion of the cavity. Also the inlay will have a better edge to it when it is finished with a slight obtuse angle; otherwise it is apt to chip off and show a rough edge.

The lingual margins can be finished at a right angle with the surface of the tooth. All inside angles and corners of a cavity should be slightly rounded to make it easier of access to get a more accurate matrix. It is extremely difficult to obtain one

from a cavity full of sharp right angles. A good fitting matrix means a close fitting inlay. All cavities properly prepared will be easy of access, to allow the easy withdrawal of the matrix or impression without marring, a condition necessary for the insertion of the inlay when completed.

OBTAINING THE MATRIX.

Before preparing a cavity on an approximal surface, the teeth should be well separated. The matrix can be obtained in two ways. By burnishing or swaging. In practice the two methods are used in preparing a single matrix as will be explained later. We cannot use the one method alone. There are advantages in both.

When the inlay is to be completed at one sitting, burnishing the matrix is the quickest; but when the dentist is busy at other work and wishes to have his leisure time for preparing the matrix and baking the inlay, an impression of the cavity can be taken and the matrix made by swaging. In burnishing a matrix as well as swaging, there are many little points of importance in each step we take in forming the same. The standard thickness of platinum inlay foils is one-thousandth of an inch. In cutting the platinum for a matrix, do not be too stingy, but cut large enough to allow plenty of lap as it is not waste of material, but waste of time to cut it too small. The platinum, being very thin, needs considerable coaxing to get into the cavity without tearing. The safest plan to avoid trouble in tearing, is to form the platinum into a cone small enough to touch the bottom of the cavity; then grasp in a ball plier a suitable sized piece of wet spunk and coax the platinum over the floor of the cavity, beginning in the center, working out and drawing the platinum down; in the meantime, if the cavity is large enough to permit it, use a second instrument with wet spunk to keep the platinum from rocking while burnishing against the walls of the cavity. When this is done, place a large piece of spunk or rubber swager into the half formed matrix, holding it firmly; pass around the margin of the cavity with the ball pliers and spunk, pressing the platinum over the surface of the tooth from the center of the cavity. After this is done, take out the large piece of spunk or rubber and use Doctor Reeves' burnishers; first use one of the half-round ball instruments in the bottom of the cavity gently, hold the matrix with a second instrument to avoid rocking, then burnish the walls with

another instrument for that purpose and finish the burnishing with the one to be used on the margin of the cavity; at this point, fill the matrix with camphor gum pressing it in very firmly until the cavity is filled flush; then talcum the camphor and matrix to keep the tape from sticking to it. Then place the tape over the matrix and apply pressure with a suitable instrument on the camphor and burnish outward over the margin of the matrix as hard as allowable. This will take the rocking condition out of the matrix if there should be any. After this part is completed, burn out the camphor and anneal matrix in the oven. Then replace and reburnish the margin. Remove the matrix with a smooth medium size nerve broach sharpened out and prepared for the purpose; or a small explorer; coaxing it out very carefully so that the form will not be marred. Or use a chipblower to force air under the edges. A drop of water under the matrix will assist the blower in freeing it.

In taking up the swaging process, the impression is taken of the cavity with Britten's yellow cement or any other cement that will behave as it does. It is quick setting and has a good edge strength, giving a good outline of the cavity. It is mixed medium stiff and taken between the finger and thumb and kneaded; first placing the finger and thumb in the cement powder to keep it from sticking; and when stiff enough not to stick to the cavity, shape it to fit the cavity so that you can see that it is being pressed into every part of it. Do not dry the cavity, but take away the surplus saliva. The damp cavity will insure the impression not sticking.

IMPRESSIONS OF CAVITIES.

For taking an impression of an approximal cavity, after pressing it to place with the fingers, use a very thin metal strip to finish, forcing the impression to place, and bend over the tooth and hold the strip with the left hand, and in case it is necessary, press the cement over the cutting edge of the tooth with an instrument or the fingers of the right hand. After the impression is hard enough to move without marring too easily, loosen it some to see that it does not stick, and press back to place snugly until it gets hard enough not to bend or break. If it is an impression of an incisor approximal cavity, and it overlaps the labial surface so that it can not be drawn, take a very sharp instrument and trim down enough to let it be removed

without cutting into the impression of the cavity proper. When removed, examine it to see that it is a perfect impression of the cavity. After a few minutes the impression can be placed in a swager with warmed dentallac or modeling compound, impression side up. Previous to this the surplus cement should be smoothed down on the impression side to allow the dentallac or compound to over lap enough to hold it into place. When hard, oil and dry, then powder with talcum or soap stone. Mix more cement stiff as when preparing for the impression and press over the impression in the lower part of the swager. When hard enough, warm more compound and place over the counter die through the upper part of the swager previously placed into position. Press down firmly with a plunger before the compound hardens so that it will fit over the cement counter die perfectly. Now we have the impression and reproduction of the cavity before us to work by. After the cement has hardened for half an hour it is usually hard enough to burnish and give the matrix its final swaging. In doing so it is the fault of a great many to hit the plunger too hard. A medium blow with a small sized swaging hammer is hard enough to bring the die and counter die together over the thin matrix and there will be less danger of fracturing the cement or compound. Soap stone should be used on the die and counter die to keep the matrix from sticking and avoid trouble of tearing it in the effort to get it loosened. There is nothing that will take the place of cement for swaging an accurate matrix. Dentallac and modeling compound will change their form in swaging, even as a counter die; so the matrix is liable to stick to the compound and cannot be freed without spoiling it. Fusible metal, like a child when company is present, is never on its good behavior when you most want it to be. It shrinks when a little bit too hot, and fails to pour good when not quite so hot. It is hard to get just right when it is most needed. Some may learn to use it successfully, but most of us do not, when it comes to the exactness for a matrix in inlay work. A perfect die and counter die of metal of a cavity would be an ideal swager. When we use cement for an impression, it forms the die and another mix forms the counter die. What can be better and more accurate, taking everything into consideration, for a matrix swager out of the mouth. The platinum can be treated in the reproduced cavity of cement the same as in the mouth if so desired, or held over the cement impression with a rubber swager while it is being well

burnished around the same. Before the final swaging, always anneal the matrix in the oven.

There is another idea that can be mentioned here that should not be lost sight of and that is to take an impression of the cavity, draw it, burnish the matrix, anneal, replace into the cavity and follow with the impression; pressing as hard and firmly as allowable without breaking the impression or tooth. Where this process can be used, it is quick and exact, especially in the final swaging.

TO OBTAIN THE BEST RESULTS.

In obtaining a matrix, it does not pay to get nervous and impatient; by doing so we meet with many failures. It cannot be hurried; we have to calm down and take our time to it. We had better consider time nothing rather than make an absolute failure of our inlay. It is time saved to be slow but sure. Success is gotten only by careful manipulation of the cavity, the matrix and the inlay. It all means very hard work, to the mind as well as the body. There is no soft snap money gotten in the dental profession. We must love our work to enjoy it, let it be ever so hard to do, but do it with thy might, trying to do every new piece of work better than the last. Our professional reputation depends upon how we use our ability. A good reputation brings us better prices. A dentist worthy of his hire, will never starve. We must not allow ourselves to go backward, but advance to a higher standard in the profession.

Perfection is obtained by continued effort over great difficulties. Good judgment and a keen sense of the right and wrong way to do a piece of work are the necessary qualifications of a dentist.

There is no kind of a filling perfection within itself when made by the best operators; it is only an effort towards perfection for the preservation of the teeth.

The nearest approach to the natural tooth, in shade, is in the inlay, and that is discernible; it cannot fool the eye at close range. The outline is there which is not seen at a distance of a few feet; and is hidden in proportion to the thinness and accuracy of the matrix.

We are not making natural teeth, but only restoring lost portions with a material that will match in shade and appearance

as nearly as possible for us at present, and that is the porcelain inlay.

SHADING THE INLAY.

The matrix completed, we proceed to select the shades to go into the inlay to correspond with those in the natural tooth. It is better to make a trial inlay on an old piece of platinum hurriedly shaped about like the matrix we are about to build on to, to give us an idea as to the proper shades to combine to bring out the results desired. With the formula before us for this particular inlay, we can proceed with some confidence in the success of our inlay as to shades, taking care to bake in the same way. When ready for the practical inlay grasp the matrix in a lock plier. Mix the foundation body to a thick cream consistency, place in the matrix with a carving instrument and jar down by rubbing the carving instrument over the corner of the plier as in the act of filing, and proceed until the matrix is one-half or two-thirds full. Use a small piece of blotting paper to absorb the moisture. Dry perfectly before placing into the oven to avoid porosity by gradually heating until dry and hot.

Before placing into the oven, place a pure gold cylinder by the matrix on the fire-clay slab, and push to the back of the muffle, gradually turn on the current until the cherry-red begins to leave the oven, and before the gold melts turn next to the last step, and when the gold melts into a perfect ball, count twenty seconds for a high biscuit, for the high-fusing foundation. But before the first baking it is deemed advisable to make a cross through the foundation with a thin pointed instrument (being careful not to mark the matrix). This will overcome the danger of the first baking drawing the matrix out of shape. After the first baking has cooled, grasp in the pliers again and proceed with more foundation body to fill up the parts where the shrinkage took place; the second baking of foundation body is baked thirty seconds after the gold melts. This gives it a glaze. If only one baking of the foundation is made, it must be thirty seconds.

BAKING.

Before I go ahead with the baking, I will go back to the matrix again. Doctor Brewster has placed on the market a matrix lining which is white with a high glaze and fuses to a

glaze in about forty seconds after pure gold melts. The degree of shrinkage is greater than in the foundation body and two bakings are necessary to cover the bottom of the matrix. Before baking, it should be separated with a cross incision like the foundation body and refilled for the second baking, then baked as follows:

First baking, thirty seconds after the pure gold melts.

Second baking, forty seconds.

The lining should be thick enough to shut out the reflection of the matrix beneath it. This will be sufficient to keep the cement from absorbing the rays of light through the inlay. The object in the lining is to reflect the rays of light back through the inlay, as they are reflected back in the natural tooth. This is supposed to give the inlay a more life-like appearance. It does it to a very great extent, but am not able to say as to what extent.

Cement, as we well know, changes the appearance of our inlays to a disappointing degree, and I think the matrix lining will help us out a great many times.

When the lining is used in an inlay, usually but one baking of foundation body is needed; then we can proceed with the enamel body to finish the inlay with the shades according to the formula of the trial inlay. The enamel body is jarred down the same as the foundation and carved to suit the contour of the case. In every baking of enamel, next to the last step on the furnace should be used just before it is hot enough to melt the pure gold. Every baking except the last the current should be shut off just before the gold melts into a perfect ball to give it a high biscuit fuse. At the last baking the gold should be allowed to form into a perfect ball and the current turned off just as quickly as that formation takes place, as four or five seconds beyond that point is liable to over fuse the inlay, and spoil your intentions as to shade and strength of the same.

AVOID OVERFUSING.

The object in baking or fusing to a high biscuit until the last baking is to avoid over fusing. It is better to under fuse and bake again than to over fuse and spoil the inlay. In shading inlays to match the natural teeth in which it is to be placed, is quite an art. In one case it will be indicated by baking different shades separately. Occasionally a shade will need modifying by

mixing with another to get the desired shade. I have had inlays where I mixed two or three shades together to match a tooth, in one baking. Where I find all the shades too dark, I use Brewster's XX white enamel. It helps one out of many a color scrape.

After completing an inlay, it always needs more or less trimming, which should be done from the outer edge towards the center with a fine stone or fine sand-paper disk until the feather edges are removed, which should be done very carefully.

Where the inlay is contoured too much, it should be fitted in the cavity and ground down to the proper contour.

HOW TO HOLD INLAY TO GRIND.

Most inlays are troublesome to hold in the fingers to grind and polish. A convenient way to do that is to melt sticky wax on the end of a small pine stick, enough to embed the inlay close to the feather edge, while the wax is quite warm. Then cool by placing it into a cup of cold water and proceed to keep cool while polishing or it will come loose. While held in this position a very high polish can be gotten with a wooden polisher and pumice or an Arkansas stone. When the polishing is done, warm the inlay enough to get it off the stick, then gradually heat it up in the furnace until the wax burns off. After it is cooled, should it need etching according to the judgment of the operator, place it in wax over the outer part where the acid is not to touch. Then apply the hydrofluoric acid with a tooth-pick. After leaving for fifteen or twenty seconds place into an alkaline solution to neutralize the acid. Some use a diamond disk and make a shallow groove in the inlay. Etching or grooving is not necessary in most inlays where the cavity is properly prepared with anchorage.

PRECAUTIONS.

Before cementing the inlay the occlusion should be looked after and in case the occluding tooth or teeth strike, the inlay or teeth should be ground so that they will not strike.

Before adjusting the inlay, the cavity should be dried and wiped with cement liquid, also the inlay should be treated in the same way, and the surplus liquid wiped off. This will produce a stronger adhesion of the parts when the inlay is cemented.

In mixing the cement care should be taken not to get it too thin or it will not get hard enough, but mix thick enough to allow the cement to have its full strength and yet give plenty of time to adjust the inlay. The cement should be mixed with a bone spatula to avoid discoloration.

In the past my experience has been that a light green or gray yellow cement has suited most cases. White might have been better in some cases, but I cannot prove it.

INSERTING THE INLAY.

Inlays should be inserted into the cavity with the fingers and pressed to place with a wooden or rubber instrument, as a metal instrument is liable to fracture or chip the inlay. When into place, it should be held there with a wedge or the wooden instrument until the cement is hard enough to hold after releasing the inlay. One-half hour after cementing a large inlay, I dismiss the patient, after removing the compresses; others, as soon as cement is stiff enough to begin to break. Where the inlay has good anchorage and the patient is warned to be careful, there is not very much danger of displacing an inlay. One or two days after the inlay has been cemented in, I polish the surplus cement away.

"All is well that ends well." The process of inlay work has been touched upon only partially in this paper. There are many more points of interest that might have been brought out, had time permitted doing so.

Self-satisfaction is seldom granted those who desire to progress in knowledge and professional ability. We must continually work and study. Read and re-read. Progress is a never ending battle. So our work is never done to perfectly satisfy us; our standard is just a little higher and the march is continued towards the goal. The race has just begun. Many rumors are ready to be with us. For whatever task is placed upon us, each will be ready to carry his own load, as one cannot carry it all. So, I will leave the paper as it is, to those who lead in discussion, to bring out what I have not.

A genius is a man who sees and does things that others do not see and do. "So be it."

DISCUSSION.

HARRY C. KAHLO, Indianapolis:— Doctor Upjohn's paper has been a very interesting one to me. It plainly shows the hand of the close observer and the careful conscientious worker. And these are factors of vital importance to the successful porcelain operator. As he tells us patience and accuracy are the essential features in the work. There is no phase of the science of dentistry so far as it applies to the practical, wherein one can spend so much time and sometimes accomplish so little as in the construction of porcelain inlays. Yet when we see the successful culmination of our labors, how remunerative is the degree of personal satisfaction which we feel to have replaced lost tissue with something which does not glare out like a locomotive headlight and advertise to the world our patients misfortunes and imperfections. Not that I have lost sight of the utility of our old standby the gold filling, for I am one who believes that it still has a place and an important one to fill. In this connection I beg to commend the paper of Doctor Hofheintz which appears in the June "Items" to those who have not read it. It seems to me that Doctor Hofheintz hits the happy medium in the comparative use of porcelain and gold.

The paper we have just heard would have been more interesting in so far as the essayists description of cavity preparation is concerned had it been illustrated by charts such as our illustrious Doctor Nyman used in his "notorious" paper of a year ago. The essayists ideas of cavity preparation are undoubtedly correct from a theoretical point of view but after all there are only a few general rules which can be followed in the preparation of cavities for the porcelain inlay.

Personally I have had little experience with the swaging process of making matrices for I have always believed and do still believe that it is possible to get as perfect a fitting matrix by the burnishing method which is much quicker and easier. I do not believe the doctor's rules for baking so far as time is concerned could be depended upon by all of us. They may give perfect results with his furnace but there are other furnaces which might not produce the same results. One must know his own furnace.

The idea of the trial inlay is unnecessary I believe and if followed in the manner described by the essayist would, I should say, be misleading since unless he duplicates his inlay so far as thickness is concerned the two would not be identical in color. The matter of color reproduction is a limitless field for study and experimentation. The results are dependant on so many factors that one can only hope for success after much experience. But there is this to encourage us, that a fairly good color reproduction is far less conspicuous than gold.

DR. J. Q. BYRAM, Indianapolis:— I am in an unfortunate position this morning. I am trying to be a nurse girl, and do many other things, and because of my numerous duties I did not get here in time to hear all of the paper, therefore I do not feel competent to discuss it. Unfortunate for me I could not hear all that the essayist said even after

I came into the room, but I would judge from what I heard that he rather discouraged the use of inlays in large cavities. But I believe that as the size of the cavity in the incisors or cuspids increases the indications for the inlay increases. I also believe that the only place that porcelain is indicated in the bicusps and molars is in large cavities. I seldom use porcelain as a filling material for small cavities in bicusps and molars. But in large cavities in incisors and cuspids I much prefer to use porcelain, rather than any other material. So I believe that if it is a large cavity it should be filled with porcelain. I do not just agree with the doctor on cavity preparation, but we had that discussed before us last year by Doctor Nyman. As a general rule cavities should be prepared for porcelain with the same degree of accuracy as other materials. I prepare my cavities practically the same as I do for a gold filling with the exception that no undercuts are made. I think in many cases, the mistake is made in not sacrificing enough tooth structure. I had the pleasure of reading a paper in Philadelphia in March and I was criticised more along the line of cavity preparation than anything else. Some said they thought my methods were good in theory but not good in practice. Those who have practiced a number of years have passed the point where they fail to cut enough tooth structure for permanent results. Let me say to you that you will have the same trouble with porcelain. You want to get it out of your head that because a porcelain inlay is cemented into a cavity it will support everything. I believe that an inlay should be etched. I have seen some tables showing the relative resistance of cement and the results are very disappointing. We find that the cement is the weak factor of the porcelain inlay and if we rely too much on retention by the center we will be disappointed, therefore I try to give the inlay every possible advantage, and I groove the inlay and the cavity.

DR. J. E. NYMAN, Chicago:—It is certainly great fallacy to imagine you can depend on adherence enough in the center alone for adequate retention for porcelain inlays. There is no cavity which presents itself but what can be given a mechanically retentive shape. This mechanically retentive shape combined with the pressure of the adjoining tooth, which you can get by contouring your inlays so that you have strong contact at the proper point. The first thing you should do is to note carefully the occlusion of the jaws. Have the person to grind on something so you can notice the effect. I do not feel that I can obtain a proper fitting matrix by the burnishing method alone except in simple cavities. If there is one point in this whole operation that is more important than the rest it is the proper adaptation of the matrix. If you fail in that no ingenuity or skill which you exert later will compensate for the failure in that direction. I believe that it is absolutely essential that the under surfaces should be etched. It has been demonstrated time and again that cement will not adhere to a glazed surface as well as to an etched surface, I have found from my experience that in all cases where an inlay has dropped out of a cavity you will find that the cement adhered to the surface of the tooth and not to the inlay itself. I do not attempt

to groove my inlays any more on account of the danger of serious damage, and I find it is not necessary.

DR. N. S. COX, Richmond, Ind.:—I had the pleasure of reading this paper before I heard it this morning, and I want to compliment the writer on a clean, well prepared paper. I am quite sure I do not agree with all that has been said in the paper; however that does not make much difference. We all have our ideas about these things, and I presume most of us will be likely to get up and say our piece, and possibly we may see things differently from what we have before. My experience with porcelain has been during the past seven years, and I find my service is like that of Jacob; I don't get Rachel just when I think I am going to. Possibly I will have to serve seven more years before I get my ideal in porcelain work.

I want to speak concerning a few points in the paper. The doctor said he never places a porcelain inlay at the point of the cusp. Both the inlay and enamel would break away, and we must have plenty of strength. Whenever I see a great destruction of tooth substance in bicuspid and molars, just for the sake of placing a porcelain inlay, when gold or amalgam would serve a better purpose, I always think of what William Allen White said of Mark Hanna,—that whenever a given situation required a big, brown damn, Hanna supplied the damn. When I see such inlays I think of Hanna. There are isolated cases where such practice is justified, but it is not wise to perform such practices for the sake of being considered an expert porcelain worker. Personally, I rarely make such restorations, because they do not seem practical to me. We must have strength to withstand the force of mastication, and in my judgment porcelain does not supply such strength. I believe, in the rush of keeping up with the porcelain procession, we are apt to overlook the possibilities of gold or amalgam for posterior teeth, when either would undoubtedly give the patient better service. Dr. Upjohn spoke of those cases where the corners of centrals are broken, involving one-third to one-half the incisal edge. These fractures occur in children's mouths, in a large per cent of cases, and I do not consider them at all practical restorations with porcelain. Children have absolutely no judgment about the care required for a porcelain contour; a tooth is a tooth in a child's mind, and they use them about as they like, and I believe some substance less pliable than porcelain should be used. It is hard for us to understand why so many men, especially those new in porcelain work, are always looking for spectacular restorations in porcelain. It seems to me there are so many of the ordinary approximal and labial cavities where we can apply porcelain, especially while it is comparatively new in our hands, and we have every assurance that there will be permanency without taking the risk of enormous restorations. Porcelain inlays are wonderful preservers of teeth when used with judgement and conservatism, and will prove to be practical builders, but the failure of a few large contours does one's practice much harm. I should certainly rather have some gold showing in my patients' mouths, and be able to close my office in the evening with the feeling that I had done my very best work, than to make a doubtful porcelain restoration, even though it seemed more artistic at the time.

The doctor spoke of using camphor gum to retain the shape of matrices; that is an excellent practice and enables one to secure and remove a matrix from cavities which would otherwise be impossible.

Personally I have very little patience with the swaging method of making inlays. It requires too much time, and there are too many opportunities for change between the cavity and the finished inlay. I have discarded swaging altogether. In the small inlays it is not required, and for the large ones I have adopted this plan: After adapting the matrix to the base of the cavity, I work out the margins to a reasonably good adaptation, then remove the matrix and cover the floor of matrix with foundation body, being careful not to approach the margins, and biscuit it; then return matrix to cavity and you have a firm foundation in the base of your matrix on which to place an instrument and hold it firmly in position while you work out the margins to a perfect adaptation. This requires very little time, especially if you use low fusing body. I presume it would be easy to start a discussion on the merits of low or high fusing bodies. I am not an advocate of either. I use them both in what seems to me their proper places. I want to say here that I think the class of porcelain restorations that are being demonstrated, by the representatives of the dental supply houses, do more harm than good. I almost had a scrap with the Jenkins representative yesterday. I use the Jenkins body and have for years. When I went in their room yesterday the first case shown me was a cuspid, fully one-half of which had been built out with porcelain with no other retention than could be given by slight grooves, and the adhesive quality of the cement. I was assured that such cases were entirely practical, and that such cases could be prepared without the slightest pain, even in live teeth, I thought of Hanna again. To the young man taking up porcelain, those exhibits are misleading and will be harmful to his practice and his patients. I do not approve of such exhibits at all. When they give us demonstrations, let them be of the more simple, practical kind. It is because I am so thoroughly convinced of the great value of porcelain as a tooth preserver, when properly applied, that I want to see it gone about in a practical way.

There is a wonderful field for porcelain inlays in children's teeth. I find that in all those approximal cavities where I formerly used cement, I can place porcelain with only a little more work for myself and trouble for the child; and it does preserve them wonderfully! It is fine for these soft teeth, for there is no bruising or fracturing of the enamel margins, and consequently less recurrent decay. I believe we ought to begin right with the young patients, and educate them to a better class of work. The ordinary cavity that is good enough to fill with cement, is good enough to fill with porcelain. And the smaller you catch the cavity, up to a reasonable limit, the less destruction of tooth substance, and the greater permanency of your inlay, I believe the younger men, just out of college, make a great mistake not to avail themselves of the use of porcelain, but I want to sound a note of warning. Do not use porcelain just because it is new and popular and "up to date." Use it in those cases where the streets is slight, and its pliable quality less likely to bring failure.

DOCTOR UPJOHN:—I must say that I have been much benefited by

this discussion and am much pleased with it. We all certainly agree with what Dr. Cox said about a porcelain crown, for where a tooth is so nearly broken down that the nerve is exposed and has to be removed the porcelain crown is indicated of course, but we are speaking of a tooth that is broken down but yet has a live nerve.

For myself I like to do gold work and amalgam work, and I like the porcelain work also in places where it is indicated. As to fusing, I think we all come to the same end, for any furnace will melt gold. I have had experience with different furnaces at different times and places and I don't see that there is any difference. I think the gasoline furnace will work on the same principle.

PROFESSIONAL ETHICS.*

BY S. H. GUILFORD, D. D. S., PHILADELPHIA, PENNSYLVANIA.

Ethics has been well defined as "the doctrine of man's duty in respect to himself and the rights of others." This general definition relates to right living in any and all departments of life, but professional ethics has to do with the conduct of professional people in their relations with themselves and their patients in the practice of their vocation. While the same ethical principles as to right and wrong should and must govern men in the transaction of the so-called economies of life, there are degrees or shades of difference between the moral obligations involved in the trade or barter of the ordinary commodities of life and those involved in the rendering and receiving of professional services. In the one instance the two principals to the exchange are supposed to stand upon a common plane. One has something that he desires to part with, the other something that he desires to become the possessor of. Each is supposed to know the value of that which he proposes to obtain or dispose of, and hence no great injustice can be done. In the other instance, the two principals hold entirely different relations to one another. The professional man possesses something (skill) which he stands ready to exercise toward another who stands in need of it, but who is necessarily entirely ignorant of its money value. The client or patient does not desire to avail himself of the skill of the professional man because it will enrich him or advance his position in the

*Read before the Northern Ohio Dental Association, Cleveland, June, 1905.

commercial world, but is driven to the necessity of obtaining it in order that he may be relieved of bodily ill or discomfort, or even to prolong life. This especially in any of the departments of medical science. It is this peculiar relation between the medical or dental practitioner and his patient which imposes a special moral obligation upon the one exercising his skill.

If, in any ordinary commercial transaction, where both parties are supposedly well informed, the temptation might arise to take advantage of some slight difference of information, surely such desire to be benefited could not or should not exist where one is entirely at the mercy of the other. Herein lies tice. The two should not be confused or confounded, and he tice. The two should not be confused or cofounded, and he who desires to be considered a professional man, and obtain the higher dignity and respect accorded his calling, must recognize that upon him is also imposed the higher moral obligation.

To this end each patient presenting for professional services should be received with a clear realization of the obligation on our part to render the best service possible with the least attending pain or discomfort. The patient cannot have any intelligent idea of the character or amount of service necessary, he simply desires physical betterment in some form and places upon the practitioner the responsibility of rendering the needed service in such a way as to promote the patient's best good.

In most cases the patient will desire some knowledge of what is to be done, or at least the extent of the services needed, and in certain cases will ask for an approximate estimate of the expense involved. Beyond this all is left in the practitioner's hands. The responsibility is placed upon him of using his best judgment in deciding upon the character or details of the proposed service, of exercising his best skill in its performance and of mitigating the disagreeable features of the various operations.

The personality of the operator, his tact and resourcefulness, can often be made to play a large part in dispelling the dread or in soothing the nerves of the timid. It will also serve to inspire confidence, which, after all, is one of the surest means of allaying apprehensions and gaining the co-operation

of the patient in our efforts to serve him well. One dentist may render the most skilful service, but do it in such a harsh and unfeeling manner as to arouse the patient's antagonism and ill-will, while another, by his gentle manner and kindly sympathy, will render equally valuable service and obtain at the same time the patient's cordial good-will and most hearty appreciation.

It is easy to determine in which course of conduct our duty lies. We are not only obligated to render the best service, but to do it in a manner that will cause the patient to submit more readily to disagreeable operations at any future time.

An additional duty, which we owe our patients, is that of having our surroundings, our environment—if you please—quiet and harmonious. The furnishing of our offices should be neat and in good taste without any attempt at vulgar show or display. We can well spare such accessories as aquaria, potted plants, singing birds or musical boxes. They savor of the dental parlor or the photographer's waiting-room.

Our patients often come to us in a nervous state, more or less filled with dread of the operations they are to undergo and for this reason, if no other, all of our surroundings should be as restful as possible. In addition to this, all of our belongings and equipment should be kept scrupulously clean so as not to offend, while all instruments and accessories should be rendered aseptic.

As to the operator himself, he owes it to his patient to keep his person and clothing not only clean but odorless. Perfumery upon his person is vile and often suggests the suspicion that its use is intended to mask or conceal that which a bath would have removed. Besides personal cleanliness, he should also see that his breath is pure, for the close proximity to his patient which is unavoidable will render the least offensiveness most noticeable. Not noticeable to himself, unfortunately, but to the one who frequently has to submit to it for an hour or more at a time. Proper food, good digestion, good habits of life and good health will usually obviate this evil which is all too common among both physicians and dentists.

The question of fees or compensation for services is one which necessarily concerns both our patients and ourselves. While the truly professional man will ever give first considera-

tion to the quality of service he renders, he could not, if he would, ignore the fact that money compensation is necessary to his existence.

What his fees shall be, and how he shall regulate them, must be decided to some extent by his environment.

In the village or town, or smaller city, where all personal and professional expenses are moderate, his fees should be correspondingly moderate; whereas, in the larger city where all expenses are higher and where those who appreciate skill and good service, and whose means are such as to enable them to recompense the professional man in accordance with the benefit conferred, the fees should be larger. To charge high fees in a small community composed principally of persons with small incomes would result in failure to build up a supporting practice, while the charging of small fees in a community of those who are well-to-do would have the effect of lessening the value of one's services in the minds of our patients.

It is a safe rule to follow that one's fees should never be less than those of other practitioners of equal skill in the same community. Whether the charge is made by the hour, or by the operation is a matter to be decided by each one for himself, but every operation should be made to yield its proportionate compensation whether it be an examination, a treatment, root-filling or tooth-shaping for esthetic effect, for each of these requires the exercise of the same skill and good judgment as are demanded by seemingly more important operations.

To the worthy poor we should materially lessen our usual fees, as is customary in other professions. A professional man is the only person capable of estimating the value of his own services, but without underrating them in the least there is every reason why he should, as an act of charity, ask and accept less than their just value, in worthy cases. We may not like to call it charity, but it is just as much so as aiding the needy in any of the other departments of life. We may not render less skilful service for a lesser fee, but we may render the best service for less than our usual compensation.

The ethical features of professional life are probably best displayed in the relations existing between practitioners.

These relations are not always ideal, nor will they ever be as long as human nature continues to be what it is; and yet this fact should not deter us from striving to approach the

ideal as near as may be. Professional men should not regard one another as rivals nor feel that each new claimant for practice is likely to lessen his own clientele or in any way interfere with his practice. Surely no section or city is overstocked with practitioners of the ethical sort, and for all others one need feel no concern. Practitioners in the same community, instead of interfering with one another, should be and can be made helpful to each other if they are actuated by a truly ethical spirit. Time was when they stood apart and regarded each other with suspicion, but this feeling has almost entirely been banished by their being brought into closer relationship through the medium of societies and organizations and not infrequently by clubs in a social way. There is no reason why practitioners should not maintain the most friendly relationship. The simple observance of the Golden Rule would bring this about in a most happy manner. Consultations in special cases and interchange of opinions even among those of like years of experience are always beneficial and should be encouraged by dentists just as they are by lawyers and physicians.

The younger practitioners especially should cultivate the acquaintance and friendship of the older ones and not hesitate to seek their advice in obscure or puzzling cases. The younger men are apt to be shy in this respect, but if they only knew how ready the older ones were to aid them they would not hesitate as they do. In like manner the older practitioners should feel it their duty to gain the confidence of the younger men and encourage them by a kind word and friendly grasp of the hand, if nothing more. Moreover, it should be recognized that the young practitioner by his lack of experience and in his struggle for a practice is at a great disadvantage with one who is well established and whose struggle for existence has long since ended.

For this reason some latitude should be allowed the younger man, both in the matter of fees and in his efforts to establish himself. He cannot be expected to seek or demand the same fees, nor to be as independent in the matter of receiving patients as those who are well established. Of course, it would be unethical to resort to any methods calculated to draw patients from others, but he should not be expected to refuse patients who have been dissatisfied with those who have previously served him.

A strict observance of ethical principles would not permit any practitioner to encourage patients to make a change in their professional advisers, but if such patients have not been well served and really need more skilful service there is no reason why a change should not be allowed. Even in such cases, however, it is only the part of prudence and good taste to avoid speaking ill of the former practitioner or of criticising his work.

While it is a good rule to discourage patients from leaving one who has served them well, there always will be those who for some reason or other have become dissatisfied and are determined upon a change. Someone will have to accept them, but it should always be done with hearty and genuine commendation of the skill and care with which they have previously been served.

Such comity between practitioners is always appreciated by patients and serves to place the dentist on a higher moral plane in their estimation.

The merchant and tradesman is expected to advertise in order that the public may know what wares he has to offer, but not so with the professional man.

His title should be an index of the services he is prepared to render, and if not sufficiently distinctive to cover all of the various features of his practice, these can be ascertained very readily without being proclaimed in the public prints.

A physician and a dentist may very properly indicate his special line of practice (if he has one) on his office stationery and professional cards, but he should not bring it to the attention of the general public by open advertisement in any form.

If the dental practitioner makes a specialty of crown and bridge, or porcelain work, or orthodontia, those seeking such special services will soon learn of it. As the letters M. D. on the sign of the physician cover all of the specialties of medical practice, so should those of D. D. S. cover all that pertains to dentistry, at least so far as the general public is concerned.

A simple card in the paper with your title and address is sufficient to show the public what and where you are, while a plain door or window plate will assist in guiding those who are in search of you.

Any attempt to draw attention to ourselves or to convey the impression that we are prepared to render better service than our professional brethren is most unethical and unprofessional.

At best, it could only attract the least desirable class of practice and would cause one to be avoided by the better and more intelligent class whose patronage we most desire. A professional man of ability needs no advertising of the usual sort.

The quality of the service he renders will prove the best testimonial of merit that he could desire, and those who are benefited by him will see to it that their friends learn of his skill.

A large proportion of the public has learned to be discriminating and, in their minds, advertising has come to be associated with incompetence.

The greatest evil menacing dental practice today, however, is commercialism and it threatens to destroy whatever claims we have had to being a profession. It generally originates in a desire to increase the income by the sale of some slight article which, by its comparative insignificance, does not seem like merchandizing. It may be a tooth-powder or special form of brush or silk floss, the supplying of which may even be a convenience to the patient, but too often nowadays it extends to the manufacture and sale to other dentists of capsicum plasters, temporary stopping, an obtundent for painless extraction, a nerve-broach or what-not, and very frequently includes some mechanical device as a matrix, a separator, a syringe or even small engine accessories, which, by every form of right, should be handled by the dealer alone.

Some practitioners have found this merchandizing in a small way to be financially profitable and others seeing it have been led into the same paths, so that the evil is extending at a ruinous rate. Codes of ethics at one time laid a restraining hand upon such practices by excluding those who indulged in them from social fellowship and society membership, but now the barriers seem to be rapidly breaking down and we wonder whither we are drifting. One need only glance at the advertising pages of our professional periodicals to see the names of well-known practitioners and occasionally a college teacher who are offering for sale articles which they have originated.

The commercial spirit is abroad and is extending so that

unless some powerful influence is brought to bear to check it we will soon be bewailing the loss of our once good name and be compelled to admit that in the maintenance of professional spirit we are rapidly losing ground.

All of the "dental parlors" and "quack" and "fakirs" who make no pretense of concealing their shameful practices can never harm us one-tenth part as much as this gradual drifting into commercialism by those who maintain membership in some of our best societies and by their association with us, and virtual recognition by us, are dragging us down as a body to a level from which we may never again rise.

DISCUSSION.

DR. DUNN WARREN: When patients of different social position in life present themselves to us, it is then for us not to feel a preference for the intelligent and well-moneyed person; but when we consider that one of limited means has placed himself in our hands with the full knowledge that our fees are greater than others might have asked of him, when they have expressed their confidence in our ability, and our services are worth more, it is certainly up to us to give them our best efforts. It is like robbing them of their life's blood to do otherwise. However, Doctor Guilford has said, we should make a difference. That might be all right in communities, in large cities, where the wealth is reckoned by thousands or millions, but in smaller cities or country towns to attempt to do it in that line is certainly to invite trouble.

I want to speak of something that I have not heard of for many years—the last time being a discourse on it by Doctor Taft, while I was in college—that is as to etiquette. It applies to the young man, the new practitioner, coming into town. My understanding is that the duty of calling is just the reverse of the duty as accepted in the social world. That is, that the new man should introduce himself to those already located. If it is left to the social plan, the busy practitioner is very apt to neglect it, therefore, leaving the young man to his own devices, oftentimes drifting into methods that he would not drift into. I think that the colleges should teach these young men that principle, if I am right in my position, that they should make these acquaintances, and they will find out that they will be introduced and taken in much more readily.

Now as to commercialism. I do not understand Doctor Guildford entirely, but certainly it is that a man who is at the chair and doing certain operations, will conceive of certain devices that are more efficient than will ever come from the dental depots or manufactories. Now, if he has perfected that device, he is certainly entitled to some reward for the discovery, instead of handing it all over to the house or to the manufacturer and allowing them to take the profits. Therefore, I take exception to that statement, if it is as extreme as the Doctor stated it.

DR. L. L. BARBER, TOLEDO: I want to commend the paper as one of more than ordinary importance. I also want to congratulate the essayist for having performed his task so well, that I am like Togo with the Russian navy—there is nothing left for me to get at.

However, the law of the moral life is: "So act as to treat humanity, whether in thine own person or in that of another, always as an end, never as a means to an end." Truly to serve humanity, therefore, is to realize oneself and at the same time to aid others in the task of self-realization.

General ethics is, therefore, the duty of justice and a good general formula is: Do no wrong yourself, permit no wrong to be done, so far as lies in your power.

The visible distinction between the liberal professions and crafts or trades, are these two:

First: That the liberal professions have, and can have, no secrets in their methods.

Second: That men engaged in them are not paid, and cannot be paid, piecemeal for their endeavors. Woe to the dentist who does not his best for the poorest person as well as for the richest prince for whom he may work.

The essayist says the patient does not desire to avail himself of the skill of the professional man because it will enrich him or advance his position in the commercial world, but is driven to the necessity of obtaining it in order that he may be relieved of pain, etc. Nothing was ever more true than this. But just here is where the man consulted shows whether he possesses the true professional ethics or the so-called "news-paper ethics." When a famous journalist was asked what the first principle of newspaper ethics was, he replied, "Raise Cain and sell papers."

So it is with many dentists; when a patient consults them, they seem to think the proper thing to do is raise Cain with the former dentist and do all the work over. Of all contemptible men, the one who, without knowing the condition under which a certain piece of work was performed, will set about to malign the one who did it and poison the mind of the one who has had it done; that one certainly is a pastmaster in—well, not true professional ethics.

Not long since a patient consulted a dentist. After making an examination the dentist said, "Madam, there is some splendid work," (referring to certain fillings). With a look of astonishment the patient said, "Do you know, as many times as I have had my mouth examined, this is the first time my attention has not been called to certain other work in my mouth as not being very good, but never before has any one said a word about the good work." I mention this only to show that professional ethics, as yet, are not being overworked.

Not to do justice is by many regarded the least that professional ethics demands. Some dentists act according to the maxim that they are the center of the universe, that all things are means for them and their purposes.

The real test of professional ethics is one's attitude toward his professional brethren and their patients as well as his own.

The attempt to judge without prejudice and to recognize the good work of others is cried down by some as the beginning of apostasy.

It is perfectly proper that patients, if they so desire, know in a general way what is to be done and be given an idea the amount of expense, so far as it is possible, but no price must be given that will in any way hamper the operator in doing his best work for the case in hand.

“For little labor, little are our gains;
Man's fortunes are according to his pains.”

The personality, tact and resourcefulness of the operator is often a very large factor in the handling of patients, but in many of us these traits are not what we desire them to be, and it is our duty to at all times try for improvement in them. But above all things, be honest with your patient; strive to know your business and then so impress your patient gracefully, tactfully, if you can, but in any event they will be far better satisfied in the long run, than mere tact and affability could have made them.

Nothing can be more true than our patients have lasting impressions made upon them, for better or for worse, according to the surroundings of an office, condition of the instruments used, etc. All that the essayist has said in this connection I most heartily approve.

The question of compensation for dental services is one that must be left to the individual operator. We must, of course, do more or less charitable work, which someone must pay for, and it is usually the man who does the work, else it would not be charity.

I believe every man, in justice to himself and family, should regulate his fees in a way that when his income is such as will permit, he should take all the time possible for recreation and pleasure with his family.

As to whether the rich should pay a larger fee because the poor must pay a smaller one, depends very largely whether you are looking to the former or the latter. Why is it that men in our profession so often regard all others in their community as rivals? I cannot conceive unless it is due to a lack of professional education and an appreciation of general ethics.

One thing is certain, it can in no way be better overcome than by the formation of dental societies and clubs, frequent consultations between members of the profession, both old and young, proper teaching on the part of the colleges, etc., for it is in the service of our fellows that we find the continual emancipation from the prison-house of our individual selfhood.

How much the man misses who, with miserly greed, hoards up his little selfish life and will not share it with his fellows.

To feel that we stand to another in any measure for the ideal, as the parent stands to the child, the teacher to the pupil, the preacher to his people and friend to friend, is a tremendous spur to us to live up to and justify, not disappoint, these expectations. Is not this one of the secrets of greatness?

DR. WOODBURY, Cleveland:—Doctor Guilford has presented a most excellent paper for our consideration, but he has neglected to touch upon one very important point; *i. e.*, patent and copyright. This phase of apparent commercialism has a bearing upon dental ethics that cannot be ignored.

There seems to be a distinction without a difference between a patent and a copyright; for one is ethical, the other is unprofessional.

To many it is right to copyright a book, but all wrong to patent an instrument. An instance in point which shows the injustice resulting from a misunderstanding between a patent and a copyright is shown in the case of Dr. C. G. Myer, of this city. The committees on Essays and Operative Dentistry of the World's Dental Congress at St. Louis saw fit to throw out Doctor Myer's paper because he had patented an instrument for the application of high pressure anaesthesia.

Gentlemen, I believe the man that patents an instrument is just as ethical as the man that copyrights a book.

Let us learn from the Standard Dictionary the difference between a copyright and a patent:

Patent: A government grant to an inventor, securing to him for a limited time the exclusive privilege of making, using or vending, and of authorizing others to make, use or vend any new and useful machines.

Copyright: The exclusive right secured by law to authors and artists to publish and dispose of their works for a limited time.

A patent and a copyright secures to the individual the exclusive right for a limited time to make and sell. A patent is secured through the patent office, and is limited to seventeen years. A copyright is secured through the Librarian of Congress, and is limited to twenty-eight years, with the privilege of renewing for fourteen years longer. A copyright protects twenty-five years longer than a patent.

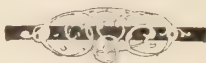
As far as I can see the difference between a patent and a copyright is the difference between tweedledee and tweedledum.

A man who copyrights his book and then condemns the man that patents an instrument, is like the "pot calling the kettle black."

The man who copyrights his book says: "I do it for the good of the profession."

What does a man patent his instrument for? It is inconsistent for the copyrightest to insinuate that the patentee protects his instrument for any other reason than the good of the profession. I believe that every man has the right to protect his instrument, and a man has a perfect right to copyright his book. If a man don't patent his instrument some other fellow will. And if it gets into commercial hands the instrument will be made of inferior material, as like as not, and the inventor's reputation suffer.

I believe that the dentist who patents an instrument has the same right to receive compensation for the sale of that instrument as a man has who copyrights a book and receives some compensation for the time and labor he has given it.



PORCELAIN INLAYS.*

BY DR. R. M. CHASE, BETHEL, VERMONT.

Making gold inlays by the impression and matrix system was brought to the notice of the dental profession several years ago and was published in *Items of Interest* and the *Dominion Dental Journal* in the summer of 1900. In my paper at that time, the making of porcelain inlays by forming the foil directly into the fusible metal matrix, or mold, while spoken of, it was not given the importance that the past five years have demonstrated by practical use of that system. Last year a paper covering the system was published in the *Dental Cosmos*, and THE DENTAL SUMMARY. Porcelain inlay work has passed beyond the state of skepticism and is now recognized by every up-to-date dentist as an important part of a dental practice.

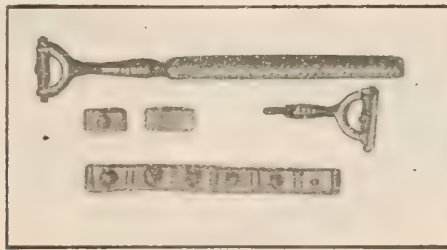


Fig. I.

While I am an enthusiast in porcelain work, I have tried to be conservative in practice, as well as teaching. Inlay work has its legitimate field and when good judgment is used as to the when and where, there is no operation in dentistry more satisfactory to patient or operator. I predict that at the end of another decade no operation will be more general, or more appreciated by an intelligent public. There are two systems, or methods, of securing a foil matrix. The impression system and shaping the foil directly into the tooth cavity. The materials and instruments devised by myself to facilitate the making of foil matrices by both the methods will be shown at my clinic. While I do not pretend to say my methods are the only ones, I can truly say that they have given me the most satisfactory results. I might add that I have been using for sev-

*Read before the Lake Erie Dental Association, May 16, 1905.

eral months an approximal matrix former Fig. 1 which I devised. This instrument and my matrix former Fig. 2 for labial and buccal cavities, will appeal to those who prefer to make matrices directly from the tooth cavity.

In making porcelain inlays by the impression and matrix system, while simple and easy, one should first familiarize himself with the little details to secure perfect and artistic results.

A great deal depends upon the proper shaping of the tooth cavity, which should be done thoroughly and with a view to artistic effects and adaptability to the mass of porcelain when finished.

Make this one rule: to cut away sufficient tooth substance for easy access to the cavity, making the walls as near as possible at a right angle to the floor of the cavity and still

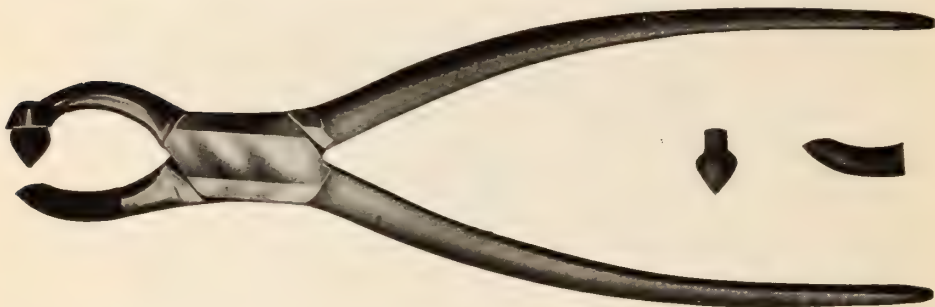


Fig. 2.

have the orifice a trifle larger. To use a homely illustration, shape the cavity so that when the inlay is completed it will fill the cavity like a cork to a bottle. With a cavity so shaped, there need be no fear of the permanency of porcelain inlays.

Starting with a properly-shaped cavity, proceed to secure a reproduction or impression of the same. Dividing the cavities into two general classes, the first that of the labial, buccal and crown varieties, are to be taken with what is known as the Chase impression compound. This compound copies and reproduces perfectly the most delicate lines and shape of the cavity, and should be used as follows: Take a piece of compound half the size of an English walnut, working and kneading it with the fingers, tempering it so that it will be a little stiff. If too soft, either roll in a napkin to absorb the

excess of the glycerine or work into the compound a little powdered pumice. If too hard, work into the substance a drop or two of glycerine. One or two trials will enable one to make it just right. Place the compound in a shallow-crown impression cup or tray and work the center of the mass up to a little point or conical surface about the size of the cavity. Dip the fingers into the talcum compound and rub the surface until it presents a shiny appearance. With cavity, tooth and gum dry, press the convex point into the cavity with a firm hand. This will give a perfect impression of the cavity, as well as the surrounding parts, the latter giving ample surface to enable the adjustment of a strip of band material without disturbing the cavity impression. The band should be as large as the surface of the impression will allow. Carefully adjust the metal band or ring into the compound around the



Fig. 3.

cavity impression, see that the edge of the band sinks into the compound to prevent the molten metal from escaping underneath.

Heat two bars of my fusible metal in a spoon or ladle to a degree that will just char or brown white paper. When this is done, pour into the band onto the impression. As soon as the metal is cool, separate and a perfect facsimile of the cavity will result, Fig. 3. Paint the floor of the matrix and about two-thirds of the depth of the cavity with shellac varnish, leaving about one-third of the depth of the cavity from the edge without varnish. When dry, roughen the shellac with an excavator which will be reproduced in the inlay, proceed to burnish the gold or platinum foil into the matrix or mold preferably by the aid of my matrix former. This will obtain a perfect foil matrix, which will give the finished inlay sufficient space between it and the floor of the cavity for the cement to hold the inlay.

In making a gold-foil matrix in the metal mold a little vaseline should be brushed over the metal mold to prevent the foil from adhering to the baser metal.

The second class consists of all the cavities in the approximal surfaces and should be taken with my special cement, which is prepared expressly for approximal cavities. The first step, and the all-important one, the lack of which has caused many failures, is space between the teeth; unless you have this, failures will surely result. The best method ordinarily is to cut a strip of rubber dam about one-eighth inch wide and place between the teeth.

The next day, increase to two and so on until ample space is obtained (patient can do this at home). When the space is a little wider than the depth of the cavity, hold the space by a wooden wedge. At the end of this time there will be but little tenderness of the teeth and you are ready to complete the shaping of the cavity and to get a perfect impression, which usually takes about twenty minutes for the impression cement to harden and can then be tilted out of the cavity without fracture.

First wipe the cavity with vaseline to facilitate the removal of the impression cement. After mixing the impression cement powder with water to a creamy consistency, fill the cavity, allowing the cement to overlap the edges.

Sometimes, owing to atmospheric conditions, the impression cement does not set as quickly as desired, a little salt may be added to the water, about one-quarter teaspoonful to an ounce, which will hasten the hardening of the cement. When the cement is hard, it can be easily removed and should then be heated to expel all moisture and placed with the convex surface uppermost, upon a smooth piece of impression compound.

Surround the cement filling with a metal band and pour into enclosure my fusible metal sufficiently heated to char or brown white paper.

This impression cement enables the operator to get an impression of difficult cavities, which would be impossible with the impression compound.

Sometimes in complicated cases, it is advisable, after the foil matrix is swaged into the cavity mould, to fill the matrix

with the gum-camphor, *pressing it thoroughly into all parts of the foil matrix. Try this into the tooth cavity and give the final burnishing around the edge, which will give absolute fit and with the space provided by the thickness of the shellac in the fusible metal matrix and the corresponding space between inlay and floor of cavity, you may be assured, if you put pressure enough upon the inlay, while adjusting, to expel the excess of cement and keep the pressure up by a soft-wood wedge between the inlay and the opposite tooth until the cement crystallizes, the result of this system will be very satisfactory.

*Since reading the above paper I have devised a camphor compound. While containing all the advantages of camphor gum it can be moulded into the matrix and carried over the edge of the cavity without crumbling.

SELECTION AND ASSEMBLING OF TEETH FOR ARTIFICIAL DENTURES.*

BY C. O. METZLER, D. D. S., OMAHA, NEBRASKA.

The selection and assembling of teeth for an artificial denture may not be thought a very important consideration, but in the mind of your essayist it is most important when we undertake to make an artistic artificial denture.

There is more to be considered than making a denture fit so the patient can masticate the food. And when a patient comes to the dentist to have the lost teeth replaced, this should not be all the dentist cares to do. The patient has the right to expect that not only the functions of mastication be restored, but also as nearly as possible the natural expression of the face should be maintained.

The mouth, including the teeth, and the eyes with their surrounding parts, is the most important factor of expression to the face. We should readily see that if we have selected teeth not according to the mutual characteristics of the patient, we will surely fail to give a pleasing expression to the mouth and surrounding parts.

*Read before the Nebraska State Dental Society, May, 1905.

How many times we see artificial dentures in the mouth that are so far from being in harmony with the characteristics of the person wearing them that they impress one as having been procured at the bargain counter and never intended for any particular person.

A few of the more common errors we will find are, that the teeth selected are of an entirely too light a shade and nearly always too small a mold, and the arrangement of the teeth too regular. With this we have a denture that will always show that it is not natural, but artificial and out of place. If we examine a number of mouths, we will find but a small percentage of the natural teeth that would be considered regular in alignment, and when we see a person with a perfect set of natural teeth the suspicion at once arises as to whether or not they are artificial.

The dentist may be an expert mechanic and make a well-fitting denture, but unless the teeth have been properly selected and arranged the case is a failure and may be called simply making a plate instead of what the patient should expect and what the dentist should be prepared to make, viz.: an artistic denture. We might say that an artistic artificial denture is one where the laws of nature have been complied with in the way of harmonizing the size, in form, in shade and in alignment, with the physical characteristics of the patient, so that the patient on opening or closing the mouth will show no suspicion or in-harmony.

In the selection of teeth for an artificial denture we should study the temperament of the patient and the temperamental characteristics of the teeth to be used. Your essayist will give here a system by which this may be used to a great advantage. First, copy the table of indications for diagnosis of the temperamental characteristics of the teeth from the American system of dentistry or American text-book, and study it until it becomes familiar, and place it where it may be convenient. Get as many impressions of patients having natural teeth as you can, the greater the variety the better. After you have taken the impression, make notes of the patient according to the characteristics of temperament, viz.: Basis, stature, osseous development, muscular development, contour, circulation, face and features, skin and complexion, hair and eyes.

We should also take into consideration the temperamental characteristics of the teeth and make notes accordingly—size, shape, color, texture, enamel, surface, edges, arrangement, articulation and arch. The vault, gums and ruga may be considered.

The notes may be attached to the models after they are made, and comparison made at different times when patients come to have artificial dentures made.

We now have a good foundation to work from, providing we have a good variety of those models articulated, and the tables familiarized. This will give some idea of the size, form, shade and arrangement of teeth that may be placed in the mouths of patients. When the patient comes you may proceed to make notes just as has been mentioned before, according to the temperament, and then take the impression and bite. The patient who insists upon having pearly white teeth may be convinced that they are not proper for her to wear and when she learns that the selection of teeth is not merely guesswork of which she thinks she is a good guesser, you have gained the confidence of your patient and the next necessary proceeding is to get a good deposit fee, just to make them fit well. The patient may then be dismissed and the models made. You then make up a table of the diagnosis of the temperament from your notes which should compare favorably with the characteristics of the patient.

We find that there are four temperaments, viz.: The lymphatic, the sanguine, the bilious and the nervous. With these four we have their combinations, making twelve more. The temperament of a patient will generally be found to be one of the compound temperaments, and this, of course, will be more complicated and make the selection of the teeth more difficult, but from comparing the temperament with notes made and attached to the selection of models and comparison of the tables we have, the selection of the teeth may be made.

There are other points now to consider which are of vital importance, the selection of gum or plain teeth, long or short bite and ridge lap, should the arrangement of the teeth permit, and if there is a great amount of absorption the gum section may be used, for as the artificial teeth are to replace the natural, so are the deficiencies of the gum made by resorption to be replaced artificially. There are unsatisfactory limitations as to arrangement possible with teeth having porcelain gum, so that cases

which require irregular arrangement of the teeth are usually supplied with plain teeth to which the gum portion is supplied of the vegetable basis. At the time the bite was taken the median line, occluding line, lip line and lines for guiding the setting and arranging the teeth should have been made in the wax.

From examination of the models articulated with bite-plates we may determine the shut of the jaws and the bite will be selected accordingly; long, medium or short. On examining the models which will show the amount of resorption that has taken place, the ridge lap may be decided upon. We now have the main points to govern us in the selection of the teeth, and should be able to do this with ease and accuracy.

A few words may be said relative to the assembling of teeth made by the dentist and also the manufacturer.

History mentions that about the year 1830, Samuel W. Stockton began the manufacture of porcelain teeth for commercial use and his stock was kept in bulk in bottles, thus necessitating the dentist assembling the entire set. This continued for a number of years, and, in fact, today some English dentists prefer to assemble their teeth into sets, and a great many times from the complaints of American dentists one would think they should assemble all the sets they use. Some complaints from the dentists are absurd and show very little knowledge as to the manufacture and supply of teeth.

Your essayist has given this some study and has come to the conclusion that the manufacturers of teeth are far in advance of a majority of the dentists, and if we could learn to place the teeth where they are intended, we would give our patients better service and not have so many suggestions to make as to why the teeth are not made this way or that way.

A few lines from the manager of one of the largest dental supply houses will give some idea of the supply of teeth that are kept for the dentist to draw from. In this house alone, one of seventeen branch houses of this dental manufacturing company, we have capacity in the tooth department for carrying over two millions of teeth and tooth trays in use here, if spread out on the floor, would cover three thousand five hundred square feet, while we have growing room for forty per cent. more trays than are included in this statement.

We could not tell, or even attempt to guess, how many artifi-

cial teeth are used per annum and figures as to our annual output are of course not given to any one.

We had in stock in all houses over seventeen million teeth, January 1, 1905. The duplicates or working molds from our master molds in actual use now will run about five thousand.

Selling teeth from trunks or dental depot will show that one side of the mouth requires more teeth than the other and the question was asked:

"Do you sell more teeth for one side of the mouth than the other?"

Answer.—According to this house data, about twenty per cent. more teeth are sold for the left side of the mouth than the right side.

The question was asked: "Is the tooth trade decreasing or increasing?"

Answer.—Our tooth trade is constantly increasing despite the large number of cheap teeth mended and used. And while many thousands of people formerly let their teeth go until too late to have them properly cared for and preserved, the use of artificial teeth still increases as stated.

This is partly accountable because of the simple matter of dental education the world around.

Your essayist will now return to the assembling of teeth, which is made almost entirely by the manufacturer, but may be done to a certain extent by the dentist to an advantage. The main factories of today have assembled their teeth, taking fronts or incisors and cuspids, and backs or bicuspids and molars. In plain teeth there are many more molds for the fronts than the backs, and in this way, should a dentist wish a good selection of teeth for a small amount of money, he may buy a large assortment of fronts and a fewer number of backs and assemble them as he wishes. Thus, when we order a set of upper and lower, plain vulcanite teeth from The S. S. White Dental Manufacturing Company, by a certain mold, we may find only the front six of this mold, and four different molds may be used in assembling the sets. In most cases the assembling made by the manufacturers will be found correct, but should you find a case where the fronts were just as desired and the backs too short, or the reverse, it is very easy to make the change, or should you order from the catalogue you may order fronts of one mold and backs of another, designating what you want.

Another point might be well made in assembling the teeth. The manufacturers place all the teeth in the set of the same shade, which is not according to nature. If the natural teeth are examined they will be found that, from the central back, each tooth is of a different shade and to follow this the teeth should be assembled according to shade or what is termed shading.

Not a few dentists complain that the teeth on the market have cusps and cutting edges round and prominent. This is where the manufacturer leaves the work for the dentist. All teeth, unless "special," come to the dentist with sharp cusps and rounding curves that should designate them for a young person, but the dentist may grind the teeth and prepare them for the age of the person, even to placing imitation of decayed, abraded, or even broken teeth. The decayed spots may be made by grinding out the fissure or cavities and placing in the brown porcelain, and baking this insures a stain even if the teeth must be ground.

Your essayist has a few specimens that show to the extent nature may be imitated, and will pass them around, giving a description of the person who should wear each plate.

Case No. 1. You can see the teeth are of the pearl-blue, and from other characteristics we would expect this person to be of the nervous temperament, excessive development of the brain and nervous system. Small and wiry of stature. The bones, light and the skull full over the large brain. The muscles small, thin and strong; actively, quick, and given to spasmodic efforts. Contour thin, circulation active. Face thin and expression nervously animated. Skin and complexion full and pale. Hair, fine, light and soft. Eyes would be of gray or blue. You will see the teeth are very much worn or abraded and would represent the wear at the age of forty to fifty years.

Case No. 2. The color being of the opaque or muddy shade, the cavities, broken teeth, and root left would show the texture was brittle and chalky. The arrangement you notice is not close, even to the extent of having badly-formed laterals. The arch large and round. The characteristics with others indicated a plate for a person of the lymphatic temperament and you would expect to see one rather above the medium. The bones large and loosely articulated. The muscles large and flabby. The contour

of the body full, and without grace or beauty. The face full and expressionless. Skin leaden-white or yellowish, and generally cold and moist. Hair fine and of a pale blonde, eyes pale-blue or gray.

Case No. 3. The teeth are gray in color, the cutting-edges and cusps long and the size rather small, not a cavity or broken tooth; we would consider the texture good. From the characteristics of this set we would consider the patient should be of a nervous temperament. You will see that the teeth are worn or abraded and show stains in the fissures and sulcus, which would indicate this was intended for one who uses tobacco in some form.

Case No. 4. We see the teeth are medium size, well proportioned and of a cream-yellow. The teeth, although having a number of fillings placed in them, show from the appearance that the texture is rather dense and the enamel smooth. The arrangement close and regular, with a firm articulation. The arch is round and finely shaped. The vault round and arched. The ruga is numerous and well-rounded. A patient to correspond with the temperamental characteristics of the teeth here represented would be of a sanguine temperament. The arterial circulatory system large, a person rather above the medium in stature. The bones and muscles well proportioned. The contour slight and graceful. The circulation very strong and with blood red and rich. The face inclined to roundness and full of expression. The skin firm and soft and the complexion fresh and ruddy. The hair blonde, red or chestnut in color, and eyes blue.

From the appearance of the teeth and the fillings we would consider the patient one who would take good care of the teeth.

Case No. 5. This shows the appearance of loss of the bicuspids and the tipping forward of the molar.

Case No. 6. This indicates crowding out of the lower anterior teeth resulting in the central above being pushed out of line, also the appearance of teeth having been extracted.

Case No. 7. This is one where the black teeth are used to show the effects of painting the teeth with nut juice as some do in the Philippine Islands. So in America and other countries, these teeth are kept in stock by some of the largest dental dealers.

DISCUSSION.

DR. F. B. DAMRON: The paper has been very interesting to me. I am very much interested in the mechanical side of it. I cannot agree with the Doctor that the manufacturers are putting before us the right kind of teeth. They are not doing it, in my judgment.

DOCTOR SHERRADEN, OMAHA: It was very interesting to me from one standpoint. How many dentists are there who like to take a patient and get an impression, select their teeth in harmony with the patient's size, shape and temperament? I don't think the dentists-at-large take the pains they should in making a selection of teeth. We all ought to support this point as an aid to beauty and a great thing for the advancement of the mechanical side of dentistry.

DOCTOR WAIT: The paper has been very interesting to me, especially from the fact that I have had an experience a good deal like Doctor Metzler in handling these teeth for the dentists as well as putting them in the mouth and on the plate. There are several things in the paper that are quite instructive, indeed, and there are a great many things there that would give better results if heeded, and that is the making of artificial teeth more natural in appearance. In carrying this out with the patients it is hard to do. I don't quite agree with Doctor Damron in regard to the manufacturing of artificial teeth. We have no way at the present time of getting at the exact kind of teeth the dentists want, but the manufacturers are undoubtedly doing the best they can. We have a great variety of moulds. The statistics surprised me. I supposed the number of teeth was gradually decreasing instead of increasing, which has been shown here today.

REPORT OF THE MEETING OF THE AMERICAN SOCIETY OF ORTHODONTISTS.

The fourth annual meeting of the American Society of Orthodontists was held in Chicago, September 28, 29, 30, 1905. The meeting was an interesting and profitable one especially to those interested in this branch of dentistry.

PRESIDENT'S ADDRESS.

Dr. Lloyd S. Lourie, of Chicago, president of the society, in his address spoke of what the society had accomplished and was accomplishing, and made several suggestions for its benefit. One was that the society appropriate a fund for original research, and suggested that the periodontal membrane be the first subject for investigation. We should know more of the effect tooth move-

ments, in the correction of malocclusion, has on the periodontal membrane.

Later in the session a fund of \$150 was set aside for this investigation.

THE FIRST SUPERIOR MOLAR AS A BASIS OF DIAGNOSIS IN
MALOCCLUSION.

Dr. Edward H. Angle, St. Louis, in this paper showed that the first permanent superior molar erupted in normal position more often than any other tooth and it was the safest to use as a guide to diagnosis in malocclusion.

He maintained that when maloccluded teeth were brought into proper occlusion the facial features would become normal. For perfect occlusion is incompatible with any degree of irregularity; the arrangement of the teeth must be even and regular. Each contributing support to the others, all in perfect harmony. The jaws, muscles of mastication, lips, and even the facial lines will then be in best harmony with the facial type of the individual.

He does not believe that heredity plays as much of a part in the causation of irregular teeth as is generally supposed, and he scouted the idea of children inheriting the large teeth of one parent and the small jaws of the other, and added that Nature does not do this any more than she supplies different legs or arms for the body. And this applies to all races. In speaking of different types of people, Doctor Angle threw some beautiful pictures on the screen in illustrating Indian types of features. They were from the collection of Mr. Curtis, Seattle, Wash.

The essayist spoke about the criticism that had been made by the old school orthodontists, that the new school places occlusion before facial harmony, but if the features are in best harmony where there is normal occlusion, he could not see why the dental apparatus should be mutilated by extraction of teeth, for, instead of bettering the features, it threw them out of harmony with the facial type.

CLINICS.

The afternoon session was devoted to clinics given by R. Ottolengui, New York; Wilson Foster, Cincinnati; H. A. Pullen, Buffalo; L. S. Lourie, Chicago; Martin Dewey, Kansas City,

Mo.; Walter H. Ellis, Buffalo; D. W. Flint, Pittsburgh; N. G. Reoch, Boston; E. B. Lodge, Cleveland; S. E. Dodson, Grand Rapids, Mich.; L. P. Bethel, Columbus, O.; W. J. Brady, Iowa City, Ia.

ORTHODONTIC PROBLEMS OF THE X-RAY.

Dr. Varney E. Barnes, Cleveland, O., presented an exhaustive paper on this subject illustrating with lantern slides.

In speaking of the needs of the X-ray in orthodontia he said that to the orthodontist the X-ray means and gives much if he will only let it.

Sad to relate, there are but a few who are making use of its great and definite powers of diagnosis. As a body, our orthodontists spend much time in preparing models of the teeth and in studying the cases presented, but their most careful diagnosis is not complete if they have not determined the presence or absence of all the teeth anterior to and including the first molars. Practice and observation may generally indicate the proper eruption of the teeth, but there are many instances, as he has found them, where the X-ray alone could tell the truth.

Some of the problems the X-ray aids in solving are: The presence or absence of teeth; supernumerary teeth; large and small teeth; location and late eruption of teeth; open sutures; interproximal spaces; abscesses; irritations; devitalized teeth; curved and inclined roots; filling in of sutures; fractures; alveolar development and results of tooth movement; absorption and incomplete root development.

Doctor Barnes then showed on the screen about sixty views from cases in practice.

The first series showed many cases where the X-ray revealed missing teeth in the arch and indicated the substituting of artificial teeth. Other slides showed teeth non-erupted for want of space or on account of retained temporary teeth or roots and indicated what course should be pursued in treatment.

Another slide showed curved roots of teeth that it was found impossible to move to the desired position.

Several slides were shown that revealed an open or partially open suture where there was a so-called abnormal frenum labium. In one of these cases he said part of his treatment had been to cut through the bone between the incisors with a fine saw, in

order to present fresh surface in hopes it would cause a union. The centrals were drawn together and retained but with the removal of retainers a year later the teeth again separated.

Doctor Barnes added that: "This is one of the so-called abnormal frenum cases. I say so-called for I believe the frenum is not the primary cause of the separation of incisors but is secondary to the incomplete closure of the suture between the maxillary bones including the alveolus. If the attachment of the frenum is incorrect and the suture be open, the cauterization of said frenum will not complete the operation. Where the suture is open, the teeth must be held an indefinite time and that may mean permanently. This is done by drilling holes on the lingual of the central incisors and cementing in a platino-iridium staple as has been suggested for these types of cases by Doctors Case and Jackson. I would not advise this part of the operation until the patient and teeth be mature. I would draw the incisors together as early as possible and retain until maturity, by means of band retainers."

In conclusion he urged orthodontists to make more use of the X-ray in practice.

ANKYLOSIS OF LIVING TEETH.

Dr. R. Ottolengui, New York, read a paper on this subject, considering first implantation and the ankylosis of dead teeth in cases of implantation.

He said that if one taps a living tooth with an instrument the sound emitted is like that of tapping against a piece of wood.

The sound from an implanted tooth, however, is similar to that from tapping against a piece of china.

This sound he considered of diagnostic value, believing that where ankylosis exists, in either dead or living teeth, it will give that hard china ring.

He cited a case from practice where the four upper incisors had been treated for mal-occlusion. The separated centrals were brought together and the laterals placed in position and all retained. Sometime later the patient returned complaining about one of the centrals being much shorter than the other. It looked like a tooth only partially erupted. He tried, by the usual methods, to bring the tooth down vertically, but it would not yield. Several other teeth were displaced by its resistance. It

occurred to him that perhaps there was an ankylosed attachment and testing the tooth found that it gave that peculiar china ring on percussion.

He then argued that it was useless to try to bring the tooth down with vertical force alone, but that the attachment ought to be broken up by lateral pressure. So he adapted carefully a platinum band to the tooth bringing it just to the gingival line, then adjusted the arch so that lateral pressure was applied, and also a slight downward pressure. In five weeks' time the tooth showed a slight line between band and gum which indicated that the attachment had been broken up and that the tooth was elongating. He re-adjusted anchorage so that it could not draw the tooth farther than into alignment, and dismissed patient. When she returned some days thereafter the tooth was in place and has since remained there.

ART IN MODEL MAKING.

Dr. Alfred P. Rogers, Fall River, Mass., in his paper said that a good model was of the greatest aid in diagnosis, and to obtain a good model it is necessary to have a perfect impression. A sufficiently large Angle tray should be selected and bent to conform more perfectly to any peculiarity in the shape of the jaw.

A good impression plaster should be used, sifted into the water to proper consistency without stirring. The plaster should be placed in the tray, none being allowed in the vault of the tray for upper impression, a greater amount is placed in the anterior part of the tray and made to extend over the outer edge of the rim if the plaster is to be forced up under the lip after tray is inserted, as advocated by Doctor Angle. Another method, and one the essayist had been using, was to place a little plaster under the lip and along the buccal undercuts with a bone spatula before inserting the tray of plaster. This was especially recommended for the lower impression. It insures a high impression and one comparatively free from air bubbles if carefully manipulated. When impression hardens, remove tray and cut a groove, or grooves in cuspid region, and pry off the labial portions piece by piece, and lay on a clean blotter to dry. When thoroughly dry put together with sticky wax.

Care should be exercised in not using shellac that is too thick (three drachms shellac to four ounces of alcohol makes it

about the proper consistency). Two coats of shellac and one of sandarach, of the same thinness, will be sufficient to produce a good surfaced model. Allow varnish to harden, then soak impression in water before pouring plaster into it. By doing this the impression plaster is satisfied and will not draw the thin plaster into the pores in absorbing water from the fresh plaster, which would make it harder to separate model from impression. Use a camel's hair brush for directing the plaster into the impression, build up on tray, invert on glass slab, shape, and allow to harden. When hard, pare away excess plaster of impression over occlusal surface of teeth until line of shellac shows through. cut a groove around side of impression in the region of the neck of the teeth, and cross grooves, about a quarter of an inch apart, from occlusal portion to the groove, then pry off impression piece by piece, being careful not to puncture the anatomical portion of the model.

Trim the base of the lower model at right angles with the molars and bicuspids, and the capital of the upper parallel with the base, the base and capital having been trimmed to from one-fourth to a third of the distance from the occlusal edges of the teeth to top of model. The sides of capital and base should be trimmed at right angles with top and bottom.

The capital should be pointed in front, trimmed to a line from the center of the teeth to about over the cuspid. From cuspid it should be trimmed straight back to the heel of model as near the anatomical portion as will be in best balance, then the corners cut off leaving perhaps a quarter inch surface between the sides and back of capital.

For the lower the front portion, from cuspid to cuspid, is rounding instead of pointed, and the rest the same as the upper.

The fingers should be kept off from the anatomical portions. When shaped with a plaster knife to approximately the desired shape Doctor Rogers uses a flat file with a rotary motion on the mechanical portions, to smooth the surface, then applies thin plaster rubbing it into the surface to fill all the imperfections and make the capital and base perfectly smooth. The upper edge of capital is then bevelled with a little plane. If carefully done this makes an artistic model that is pleasing to look at as well as useful as a guide in the correction of the malocclusion.

NORMAL OCCLUSION VS. NORMAL DENTAL RELATIONS.

This paper by Dr. H. A. Pullen, Buffalo, N. Y., was an answer to the article by Dr. C. S. Case, published in *The Items of Interest*, July, 1905. The principal statements Doctor Case had criticised were the remarks of Doctor Pullen to the effect that normal occlusion was incompatible with any degree of irregularity and with this ideal relationship normal occlusion and normal facial lines were inseparable.

Also, that normal occlusion is a condition of perfect relationship either between normally formed and aligned teeth, and alveolar arches of the maxilla and mandible when in antagonism, the mandible being in its farthest posterior position and in perfect median register with the maxilla and both in normal relationship with contiguous tissues.

Also, that such a condition precludes abnormal relationship of contiguous tissues, such as over or under developed alveolar or maxillary zones, a maxillary or mandibular protrusion or retrusion, and in its most perfect conception can only be seen in a perfect anatomical subject.

In his criticism Doctor Case had used the terms "normal occlusion" and "normal dental relations" as synonymous. Doctor Pullen, in his paper, said that these terms were not synonymous the former referring to ideal relationship to the perfect anatomical subject and exact position of the antero-posterior and median register of the teeth in antagonism. The word "occlusion" giving the basis of the latter statement as it means approximation or closing the teeth together, while the latter term, "normal dental relations" may refer to any position of the teeth in articulation as not limited to position of occlusion, and the word "relation" is not absolute unless limited or defined to an exact meaning which it is intended to convey in its use. He therefore could not agree with Doctor Case's synonymical use of the two terms. Doctor Pullen said we have gone one step farther and defined a position of normal dental relationship and designated it in its limitations as "normal occlusion."

Normal occlusion is the highest conception of a type, not a relative or approximate condition.

Doctor Pullen said that we do not claim that normal occlusion is the ideal commonly found in any type, indeed quite the reverse, but we find many cases approximating the ideal

and to such an extent that they vary but little from perfection.

The new school does not claim that it is always possible to restore the ideal in every case of malocclusion, but its approximation is best assured by following out the teachings of occlusion in the treatment of these cases. How near the restoration has been to the ideal he said could be judged from the reported cases based on this kind of treatment. As a further proof Doctor Pullen mentioned the following characteristics of normal occlusion:

1. Normal shape and size (according to type) of each arch.
2. Normal position of each tooth in each arch.
3. Normal shape and size of each tooth in each arch.
4. Normal relationship of each tooth to the other teeth and of the occlusal inclined planes of the cusps of the teeth to those of the other teeth.

This last is limited to the most constant relationship between the arches to the position of the maxilla and mandible at rest, being occluded when the mouth is closed. Occlusion differs from articulation which is the relation between the teeth of the maxilla and mandible during lateral and protrusive excursions. Occlusion is passive; articulation, active. The old school orthodontists say that facial lines should be first considered and that occlusion is of secondary importance. The facial lines are dependent upon normal occlusion for their normal relationship, hence "occlusion" is the factor of prime importance rather than the "facial lines." Facial lines are dependent upon the osseous structures of the face, the formation and relative positions of the maxilla and mandible and the teeth and processes for their harmony or inharmony of form, and a reversal of this natural order of etiological characteristics would be an absurdity.

Consequently faulty facial lines should be regarded as symptoms rather than causes of an existing deformity of the osseous structures underneath.

The so-called bimaxillary protrusions can be as readily noticed and as exactly diagnosed from examination of abnormal relations of the osseous and dental structure as from the abnormal positions of the lips and soft tissues of the chin.

In the treatment of malocclusion efforts should be toward the accomplishment of three main objects:

1. Correction of the malocclusion.
2. Establishment of harmony in the relation of the jaws.
3. Improvement of the facial lines.

While the ideal cannot always be obtained, yet the best attainable results cannot be looked for with a lesser standard. Bimaxillary protrusions and retrusions do occasionally exist, but where they do they will be found apparant exceptions to the rule and found to be modifications of classes I, II, and III of the Angle classification.

He referred to the absolute reciprocal movement of the upper and lower teeth in treatment as an abused misconception of the application of the Baker anchorage.

The use of the rubber ligature is applied by the new school only so far as the physical and mechanical characteristics present will allow and the requirements demand.

A few of the uses of the Baker anchorage he gave were where either arch of teeth in phalanx was used for attachment of the rubber ligature to resist the movement of one or two teeth or more in the opposing arch, for which a greater resistance was needed than reciprocal anchorage.

Also where the upper arch was used in phalanx as resistance for the consecutive movement of the lower anterior and buccal teeth anteriorly.

Where the lower arch in phalanx was used the consecutive movement of upper molars, bicuspid, and incisors when the rubber ligature was applied specially for this movement.

Its use also as an auxilliary to any mesial or distal movement of one or more teeth. As to the absurdity of equal reciprocal movement he referred the reader to the editorial of Doctor Ottolengui in July *Items of Interest*.

DUPLICATION OF MODELS.

Dr. W. H. Ellis, Buffalo, N. Y., gave the results of his experiments on duplication of models. Briefly stated his method is as follows:

To make the case in which the gelatine mould is to be cast

he takes a model and wraps it in tissue paper to protect from the clay used to cover it in shaping the case over the model, soft modelling clay about three-fourths of an inch in thickness should be moulded over the sides and top of the model, but not over the base. Place a cylindrical block of clay, about an inch and a half in diameter and an inch high, upon the top to form the opening through which the gelatine will be poured. Wind a thin strip of clay around the sides close to the base, the upper surface starting down so as to form a slight undercut groove in the base of the case, which will serve the purpose of keeping the gelatine mould firmly in the case when the duplicate is being run. When this is done, build up a case of plaster over the clay. This can best be accomplished by first building up a wall of clay, standing about an inch away from and around the model which will confine the plaster. When the plaster has hardened, remove the clay wall and take out the model. The case can now be trimmed and shaped, the inside of the case should be given a good coat of shellac varnish.

To keep the gelatine from adhering to model, coat the model with soapstone, using a brush, or if a more impervious coating be desired, and one allowing a more ready separation of the model, use a light coating of stearine, two parts, melted in one ounce of kerosene oil.

Fasten the model to a glass slide with sticky wax. Give the inside of the case a coating of the stearine mixture and place over model, having model in the center.

Take the best grade of gelatine, such as the domestic French gelatine, place in double boiler, first dipping the sheets in water, add about one teacup of water to half-pound of gelatine for the right consistency. If too thick it will not be elastic enough, and if too thin it will be flabby and weak.

Heat slowly until thoroughly melted, stirring occasionally. Do not pour while hot, but cool to about 95 F. Pour slowly into case.

If it leaks around the bottom, stop with a little wad of clay. Let it stand over night, or at least a few hours to harden, then carefully work gelatine mould out of case by springing it away from the sides and top. After removal of the mould, withdraw the model by carefully springing the gelatine away from the model until loosened. Allow mould to stand a half hour after

model is removed for it to settle back into shape, then brush mould with soapstone, to fill the pores, removing excess and brush the surface with alum water made by dissolving half an ounce of powdered alum in one cup of boiling water, which hardens the gelatine. When dry, coat the surface of the mould lightly with stearine mixture which will cause the duplicate to separate more readily from the gelatine. Use quick setting plaster and guide it into the mould with a camel's-hair brush, shaking gently to make it settle into position.

Remove model as soon as plaster is set. For each duplicate, soapstone and stearine the mould.

As many as six or eight good duplicates can be made from one mould.

The other papers read were: "The Influence of Inheritance on Malocclusion," by Dr. Wm. J. Brady, Iowa City, Ia. The essayist thought that instead of being hereditarily acquired, malocclusion was rather due to environment and direct causes.

Dr. F. S. McKay, St. Louis, read a paper entitled "Contrast Between the Old and New School of Orthodontia," referring to the practice in many cases of extraction of teeth, especially the bicuspsids, by the old school, for the correction of malocclusion, while the new school believed that extraction should not be done if the best results were to be obtained.

Mr. Carl Werntz, of the Chicago Academy of Fine Arts, delivered a lecture on "Facial Art," speaking particularly of the Gibson and Christy types of features.

Dr. Martin Dewey, Kansas City, Mo., read a paper on "Hereditry as an Etiologic Factor in Malocclusion," and Dr. Richard Summa, St. Louis, read a paper on "The Teeth and Their Osseous Base." While both papers were excellent they were of a character that seemed impossible to give the reader a clear understanding of them in a brief synopsis. They should be read in full.

"Cases in Practice" were presented by Dr. F. M. Casto, Cleveland, Ohio; Dr. L. P. Bethel, Columbus, Ohio; Dr. S. E. Dodson, Grand Rapids, Mich.; Dr. C. A. Hawley, Columbus, Ohio; Dr. A. H. Ketcham, Denver, Col.; Dr. G. P. Mendell, Minneapolis, Minn.; Dr. N. G. Reoch, Boston, Mass.; Dr. W. O. Talbott, New Orleans, La.

The officers selected for the ensuing year were:

President, Dr. R. Ottolengui, New York; Vice-President, Dr. H. A. Pullen, Buffalo; Sec'y-Treas., Dr. Frederick S. McKay, St. Louis; Board of Censors, Dr. F. M. Casto, E. H. Angle, M. T. Watson.

The next meeting will probably be held in New York City in October, 1906.





SUGGESTIONS

RETENTION OF GOLD CONTOUR FILLINGS.

D. T. Hill, Syracuse, Neb.

The cervical wall offers as firm a foundation as does the same wall of an ordinary approximal cavity: therefore, the incisal edge, owing to its thin, delicate walls, is where the failures originate, being easily broken by pressure on the exposed edge of gold by hard substances during the act of mastication. After preparing the cavity with an undercut under the cervical wall, and the labial and lingual walls dressed down to a solid foundation, without any undercut, select a twist-drill a little larger than the pin of an ordinary plate tooth: drill, at right angles, at a point where the enamel of the labial and lingual walls come together, or just above the enamel over the incisal edge of the tooth; drill through nearly to the enamel of the opposite approximal surface. Break a pin from a rubber tooth which has a well-rounded head and insert the pin in the drill-cavity; cut the pin off if necessary, until the head of the pin comes within the line of the approximal surface which the gold is to occupy. The drill-cavity being a little larger than the pin, will allow that portion of the pin entering the cavity to be barbed; fill the drill-cavity with cement and press the pin in place; after the cement has set, the filling is built up from the cervical wall in the usual way, finishing the entire filling between the floor of the cavity and the head of the pin, except the gold necessary to cover the head, and to finish the filling in giving correct contour. The pin being set horizontally under the pulp, at as great a distance as the dentin will allow, and being set in cement, the thermal shocks need but little consideration. I have many fillings secured in this manner, and the uniform success of the idea prompts me to make this report. I see no reason why these vexatious contours cannot be secured

on this plan by the use of porcelain as with gold? Suppose the headed pin is set the same as for a gold filling, as described, only much shorter; the space under the head of the pin filled with cement, so the diameter will be as great as the head of the pin, that the foil may be worked over it, and a matrix obtained; after removing the cement from the pin, the porcelain would be held in place as a Davis crown is held.—*Items of Interest.*

TREATMENT OF BLIND ABSCESSSES.

J. P. Buckley, Chicago.

I refer here to abscesses without an external opening, except, perhaps, through a cavity in the offending tooth.

In discussing the therapeutics of this condition I shall ask my readers to bear in mind much that was said with reference to the chemistry of pulp decomposition in our article on the treatment of putrescent pulps, for in the treatment of blind abscesses we have the same mephitic gases with which to contend that are found in the former condition.

In treating these cases, the rubber dam should be adjusted and the teeth which are included, sterilized, especially the cavity in the affected tooth, after which the pulp-chamber should be opened into with a suitable round bur. Usually the pus flows freely, in which case it is permitted to flow, pressure being made on the tissue immediately over the end of the root. It should be our effort, at each sitting, to mechanically evacuate as much of the pus as is possible. When this has been done the canals can be cleansed and the following remedy hermetically sealed in each canal on cotton:

R	Tricresol	f 5 i j
	Formalin	f 5 j
M.	Sig: Use as directed.	

In those cases where there is a copious flow of pus at the first sitting, equal parts of formalin and tricresol can be used, and the dressing should be changed every day until it can be removed without the pus flowing from the canals. When pus is forming rapidly at the end of the roots the dressing soon becomes dissipated, the remedy is neutralized and it is a loss of time to leave it in the canals more than twenty-four hours.

Ordinarily the pus formation can be checked in one or two treatments, at which time the modified formula, as suggested above, can be hermetically sealed within the tooth. It is now possible to change the dressing too often. The formation of pus has been checked and the tooth should not be disturbed for ten days or two weeks in order to give nature a chance to effect a cure. If, at the end of this time, there is no evidence of pus, and the case gives a favorable history, the canals can be filled. Should, however, there be a slight odor, although the tooth has not caused any trouble, we are not justified in filling the root. In these cases we can further modify our original formula of formalin and trieresol by taking one drop of this mixture and adding to it two drops of trieresol. It should be remembered that the value of formaldehyde in any remedy to be used in these cases depends upon the power this agent has of uniting chemically with the poisonous ptomaines and irritating gases. (NH_3 and H_2S .) Where these substances are not present, formaldehyde is contraindicated.

Quite frequently in blind abscess cases, after the pus formation has been checked, we have a weeping of serum from the canals. I find this condition more often associated with the superior laterals than with any other teeth, although it is sometimes found in connection with all teeth from which abscesses have been treated. An excellent remedy to use here is eucalyptol, to which thymol has been added in the following proportion:

R	Eucalyptol	f 5 j
	Thymol	gr X
M. Sig:	Use as directed.	

If this remedy fails to check the secretion and the liquid is serum (not pus), no hesitancy need be had in filling the root although the canals should be moist.—*Dental Review*.

CONVENIENT ALCOHOL LAMP FOR LABORATORY.

G. E. Kuhl, Saline, Mich.

Prepare the nozzle of an oil can of suitable size by cutting it off at the diameter of the wick required. Insert the wick, fill oil can with alcohol, adjust the nozzle with wick inserted and the apparatus is ready for use. When not in use cover with a small glass vial.—*Dental Review*.

**COCAINE-PRESSURE METHOD OF DESENSITIZING DENTINE
OBJECTIONABLE.****J. P. Buckley, Chicago.**

I object to the use of cocain with pressure for desensitizing dentine, but not for the extirpation of the pulp. Because of the direction of the dentinal tubules it is impossible to desensitize the dentine unless you first anesthetize the coronal portion of the pulp, and that cannot be done unless you anesthetize the entire pulp.

I do not believe we are justified in anesthetizing the pulp for the purpose of lessening pain, because, first, cocaine is a protoplasm poison, and when you force cocain through the dentinal tubes into the pulp tissues you poison the protoplasm of the entire pulp and you are bound to have trouble later. Second, in the decomposition of the dentinal fibers ptomaines may be formed, and unless you are extremely careful to sterilize the cavity before forcing in the anesthetizing solution, these ptomaines will be forced through the dentinal tubules into the pulp, which may cause trouble. Third, if the tooth is completely desensitized, you may drill further than is really necessary and insert the filling so close to the pulp as to menace the life of this structure.

For these three reasons I object to the use of cocain for desensitizing the dentine. I use cocain with pressure for the extirpation of the pulp, however, but I do not believe in forcing the anesthetizing solution, however sterile, down into the pulp tissue through the apices of the roots, and anesthetizing the tissue beyond. The solution should be forced no further than is absolutely necessary for the painless removal of the pulp. If you fill the root immediately you are liable to force the root filling beyond the apex, causing a "lame" tooth after the effect of the anesthetic passes away. *Dental Review.*

CONTROLLING HEMORRHAGE AFTER PULP REMOVAL.**G. M. Kinsey, Toledo, O.**

If you know of any better remedy than oxpara liquid for controlling hemorrhage, after removing pulp, with cocain pressure, or putting on porcelain crown, let the profession know it, if not tell them about this.

STUDDING TO ARREST ABRASIVE PROCESS.

John C. Curry, Philadelphia.

The operation of which I am about to speak is, I think, original: if it is not, I am yet to learn of its having been used before. Frequently we are called upon to treat cases where the demand seems to be for arrestation of the abrasive process, rather than the restoration of lost contour. The occlusion is perfect; no sense of loss has yet been felt, but exquisite sensitiveness warns the patient that all is not well. The patient may be nearing fifty, some indications of pyorrhea may exist. The teeth are hypersensitive: business is pressing; time is more precious than teeth, and yet comfort must be had at any price—except time. These are the cases where studding is an inspiration, though there are plenty of other cases where it can be used to advantage.

Studding as an operation is very simple, rapid and efficient, and the procedure is as follows: In the absence of a better set of instruments, I use the instruments known as the How drill and taps, and the iridio-platinum post-metal made for the How crown system. The drills are made in three sizes, and the post wire is threaded to correspond with the drills and taps. After selecting and desensitizing the tooth to be operated upon I drill and tap as many holes as I think required—from two in the laterals to four or six in the molars; the hole need not be over a depth of one-sixteenth of an inch. The post wire is cut with the Clapp saws a trifle longer than the hole is deep, and with the same instrument cut a groove across end of screw to engage the driver; dip the screw in a rather soft mix of Harvard cement and run it home. After the cement is hard, trim it off flush with the surface and polish.—*Dental Brief*.

RETENTION OF DENTURES.

William M. Gabriel.

If possible a mouth should not be rendered edentulous, but in each jaw two roots should be left and utilized to support the plate. A satisfactory method is to fit each root so left with a gold cap and tube, into which fit a pin attached to the plate. The stability which even one root so treated will give to an entire denture is surprising.—*Dental Record*.

NEW PUBLICATIONS

THE AMERICAN TEXT BOOK OF OPERATIVE DENTISTRY, in contributions by Eminent Authorities. Edited by Edward C. Kirk, D.D.S., Professor of Clinical Dentistry in the University of Pennsylvania, Philadelphia. Written by Edward H. Angle, M.D., D.D.S., Henry H. Burchard, M.D., D.D.S., Calvin S. Case, M.D., D.D.S., Dwight M. Clapp, D. M.D., William Crenshaw, D.D.S., M. H. Cryer, M.D., D.D.S., Edwin T. Darby, M.D., D.D.S., C. L. Goddard, D.D.S., S. H. Guilford, A.M., D.D.S., Ph.D., Joseph B. Head, M.D., D.D.S., Louis Jack, D.D.S., Edward C. Kirk, D.D.S., F. B. Noyes, B.A. D.D.S., Louis Ottogy, D.D.S., C. N. Pierce, D.D.S., J. D. Thomas, D.D.S., A. H. Thompson, D.D.S., James Truman, D.D.S. New (3d.) edition, enlarged and thoroughly revised. In one octavo volume of 899 pages with 875 illustrations. Cloth, \$6.00, **net**; leather, \$7.00, **net**; half morocco, \$7.50, **net**. Lee Brothers & Co., Publishers, Philadelphia and New York, 1905.

The second edition of this popular text-book was soon exhausted, necessitating a third edition which has just appeared. In this many and important changes and improvements have been made. The rapid progress made in the department of operative dentistry has necessitated the revision of each chapter which now conforms to the best and most useful teaching.

To keep the book within its convenient compass and yet include the whole of its subject, the former chapter on Embryology has yielded space to more directly operative matter. At least one hundred pages of entirely new material appears in this edition, and not a paragraph remains unless it represents the latest knowledge. An entirely new chapter has been introduced on the use of the matrix in filling operations by Dr. William Crenshaw.

The subject of orthodontia has been placed in the hands of Dr. Edward H. Angle, and the chapter entirely rewritten from the standpoint of occlusion.

The illustrations, which average practically one to each of

the 900 pages of the volume, have been revised with equal care, and are new and fresh, proportionately with the text. The volume is one affording the maximum facility for both instructor and student in their respective duties, and reflects credit on both editor and publishers.

TRANSACTIONS OF THE FOURTH INTERNATIONAL DENTAL CONGRESS HELD
AT ST. LOUIS, MO., AUGUST 29 TO SEPTEMBER 3, 1904.

The editorial committee, Drs. E. C. Kirk, Wilber F. Litch and Julio Endelman have sent complimentary copies of these proceedings to the dental press and we desire to extend our thanks for the favor.

The transactions will comprise about one thousand printed pages and published in three volumes.

Volume one and two are now issued.

Volume one contains a historical sketch of the inception of the movement which led to the organization of the Congress, and how the organization was effected, together with the names of committee of organization, other committees, officers and honorary officers of the Congress, governmental delegates, delegates from societies, schools, etc., interpreters, a list of members and resume of resolutions adopted by the Congress. Also all papers read before the general assembly, discussions, and addresses, and papers and discussions in sections I and II. Volume one contains 380 pages.

Volume II contains papers and discussions given in sections III, IV, V and VI, which occupy 441 pages.

The volumes contain a fund of information and are worthy of permanent binding.

Printed on super-calandered paper, with excellent engravings to illustrate the text, neatly printed, and so well edited and arranged the books are worthy of praise and reflect great credit on the editors.

THE KANSAS CITY DENTAL JOURNAL.

The above is the name of a new dental journal, the first number of which has just appeared. It is edited by Dr. J. P.

Root, and is the official organ of the Alumni Association of the Kansas City Dental College. It will be issued bi-monthly. Aside from college matters each issue will contain original articles from prominent dentists, clippings from other journals, etc. The first number makes a creditable showing, and we wish the journal and its editor success.

THE PHYSICIAN'S VISITING LIST. Published by P. Blakiston's Son & Co., Philadelphia. Price, \$1.00.

This is the fifty-fifth year of publication of this handy little pocket visiting list. Aside from blank pages for visiting list, memoranda, addresses, cash account, etc., it contains useful information in the way of incompatibility, poisoning, metric system tables, weights, measures, dose tables etc. Just what every physician needs.





NOTICE.

The next meeting of the South Dakota State Board of Dental Examiners will be held at Sioux Falls, S. D., January 16, 1906, beginning at 1:30 P. M., sharp. All applicants for examination must bring diplomas from reputable dental colleges or affidavit of having been engaged in the practice of dentistry for at least three years immediately preceding said examination. Instruments and materials necessary to do all kinds of operative and prosthetic work will be needed at this examination. Vulcanizer and lathe will be furnished by the Board. All applications must positively be in the hands of the secretary by January 9th.

G. W. COLLINS, *Secretary*,
Vermillion, S. D.

PENNSYLVANIA STATE BOARD OF DENTAL EXAMINERS.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg December 12, 15, 1905.

For papers and admission cards address

DR. N. C. SCHAEFFER, *Secretary Dental Council*,
Harrisburg, Penna.

INDIANA STATE BOARD OF DENTAL EXAMINERS.

The Indiana State Board of Dental Examiners will hold their next regular meeting at Ft. Wayne, January 9th, 10th and 11th, 1906 in the office of Dr. J. S. McCurdy. All applications for examination must be filed with the secretary not later than January 4th. For further information apply to the Secretary.

F. R. HENSHAW, Middletown., Indiana.

AFTERMATH

PERSONAL AND MISCELLANY.

Will Specialize.—After January 1, 1906, Doctor D. W. Flint, Pittsburgh, Pa., will limit his practice to Orthodontia.

Dentist Moves to Philadelphia.—Doctor Pierce has given up his practice in Newtown, Pa., and has moved to Philadelphia.

Removal.—Dr. R. E. Maercklein, after twenty years of practice in Milwaukee, Wis., has located in Port Washington, Wis.

Fire.—The office of Dr. W. W. Brown, of Crandon, Wis., was damaged by fire November 5th. The loss was \$500 and no insurance.

Accidentally Shot.—Dr. H. H. Joyner, Paris, Tex., was accidentally shot while hunting ducks, November 6th, by a companion in the party.

Massachusetts State Board Report.—At the recent examination twenty-one of the fifty-six candidates passed a successful examination.

Now Located in New York City.—Dr. Carol M. McElroy announces her removal from Delaware, O., to The Hawthorne, 70 W. 49th Street, New York.

Dentist Injured.—Dr. S. J. Sharp, of Kewanee, Ill., was painfully injured while working in his laboratory by overturning two quarts of scalding water on his left leg.

Dentists Reappointed on Dental Examining Board.—Gov. Bell, of Vt., has reappointed Dr. J. Holmes Jackson, of Burlington, a member of the State Board of Dental Examiners.

Forgave the Dentist.—An east side small boy who had just had a tooth pulled changed a clause in his nightly prayer to "Forgive us, our debts as we forgive our dentist."

Board Member Resigns.—Dr. J. M. Meyer, who was reappointed last May a member of the Washington State Dental Board, has resigned on account of his removal to Portland, Oregon.

Patient Could Not Survive Extraction.—Thomas Nolan, of Greenville, O., age 60, died September 21st. He died in dental office after having seven teeth extracted. He had been in bad health.

Inlay Club, Iowa State Dental Society.—Officers elected as follows: President, J. B. Monfort, Fairfield; vice-president, C. E. Woodbury, Council Bluffs; secretary-treasurer, G. W. Singluff, Burlington.

Dental Board Turns Down Applicant for Using a Pony.—The territorial Examining Board refused to grant a license to D. D. C. Labbe, of Albuquerque, N. M., claiming that he used a pony in examinations.

Dentist Struck by Street Car.—Dr. Edward Blackshaw, of Urbana, Ill., was struck by a street car while walking on the tracks October 28th, and was seriously injured. He is very old and his recovery is doubtful.

El Paso County Odontological Association.—Officers elected as follows: Dr. John Grannis, president; Dr. Henry B. Hayden, vice-president; Dr. B. Frank Gray, secretary; and William L. Bartlett, treasurer.

Fined for Illegal Practice.—Dr. A. F. Faass, T. E. McCraith and H. C. Leslie, Utica, N. Y., were fined, November 17th, \$50 and 150 respectively, for practicing dentistry without a license from the State Examining Board.

Woman Dies in Dental Chair.—Mrs. Wm. Pascoe, of Anacortes, Wash., died November 6th in a dentist's chair, while under the influence of chloroform. Two physicians were in attendance during the administration.

Tragic Death of Dentist.—While returning from Beverly to Marietta Ohio, in a boat, October 26th, Dr. M. L. Williamson with two friends went over the dam at Lowell and Dr. Williamson was drowned. The others were rescued.

Death From Chloroform.—Annie Delaney, of Providence, R. I., age 9 years, died in a dental office October 16th from the effects of chloroform which had been administered while extracting a tooth. She fainted twice and died in a few minutes.

No Imported Dentists.—Several qualified American medical and dental men recently made the mistake of going to the Transvaal intending to establish themselves there in the practice of their professions, only to find out that the law was prohibitive.

A False Falsehood.—Young Lady—Did you make an excuse for me to the gentleman who called?

Bridget—Yes, mum. I told him you had gone to bed with the toothache.

Young Lady—Gracious! He's my dentist, and knows my teeth are false.

Dr. J. A. Watling Now a Resident of Washington, D. C.—Dr. J. A. Watling, former Professor of Operative Dentistry Dental Department, University of Michigan, and a resident of Ypsilanti, Mich., is now located in Washington, D. C., where he expects to reside permanently.

Artificial Teeth Caused Death.—Artificial teeth caused the death at Kokoma, Ind., of Mrs. Sarah Coston, aged 58. A defective plate resulted in the abrasion of the skin and septic poison. All the bones on one side of the head became affected. Her suffering was intense.

Hartford, Conn. Dental Society.—Officers elected as follows: President, Dr. A. E. Carey; vice-president, Dr. E. R. Whitford; secretary, Dr. E. H. Munger; treasurer, Dr. A. A. Hunt; librarian, Dr. J. H. Kane, executive committee, chairman, Dr. H. E. Snow, Dr. Charles H. Riggs, Dr. M. J. Goodwin.

Kansas City Dentists Organize.—The following officers were elected: President, Dr. J. P. Root; vice-president, Dr. K. P. Ashley; secretary-treasurer, Dr. T. E. Purcell; corresponding secretary, F. G. Worthley; executive committee, C. L. Hungerford, J. D. Patterson and H. S. Vaughn.

American Dentists to Attend the Ameer.—D. R. Smith, an American dentist who has practiced his profession in Calcutta for some years, has been summoned to Kabal to attend the Ameer of Afghanistan. His fee for this service is 12,000 rupees (\$3,850) in addition to his expenses to and from the ameer's capital.

Southwestern Iowa Dental Association.—The following officers were elected: President F. M. Kelsay, Villisca; vice-president, F. H. Scranton, Corning; secretary, George Brooks, Greenfield; treasurer, G. E. King, Villisca. Red Oak was selected on the first ballot for the next convention on the second Tuesday in October 1906.

Northern Indiana Dental Society.—Officers elected as follows: President, Dr. Otto U. King, Huntington; vice-president, Dr. F. M. Bozer, Logansport; secretary-treasurer, Dr. S. A. Bell, Hammond; superintendent of clinics, Dr. L. A. Salsbury, Crown Point. The executive committee will be appointed by the newly elected president.

Burglaries.—Thieves entered the office of Dr. N. G. Wills, of Connersville, Ind., and took \$35 worth of gold, besides some crowns and bridges. The office of Dr. D. H. V. McGregor, of Atlantic, Ia., was burglarized October 8th and gold fillings and tools taken to the value of \$20.

Loving Cups for Dentists.—In recognition of faithful services rendered for thirty-five consecutive years, Dr. George F. Keesee, recording secretary and Dr. J. Hall Moore, corresponding secretary of the Virginia State Dental Association, were presented with loving cups from members of the State Association, who met in conjunction with the City Dental Society for the purpose of making the presentations.

Central Texas Dental Society.—Officers elected as follows: President, J. K. Campbell, Temple; vice-president, M. T. Foreman, Waco; secretary-treasurer, J. M. Murphy, Temple; member executive committee, W. H. Guess, Rogers. Waco was selected as the next place of meeting.

Instruct the School Children.—The South Carolina Dental Association offers to send lecturers to the public schools to instruct children how to care for their teeth. The dentists say they plainly observe the carelessness and lack of attention given to children's teeth—the first organs of good digestion that contribute toward making a healthy and apt mind. The Florida Dental Association may make a similar offer.

Hartford Dental Society.—At the annual meeting of the Hartford Dental Society, held October 9, the following officers were elected: President, Dr. A. E. Cary; vice-president, Dr. E. R. Whitford; secretary, Dr. Edwin H. Munger; treasurer, Dr. A. A. Hunt; librarian, Dr. J. H. Kane; executive committee, Dr. H. E. Snow, Dr. Nelson Goodwin and Dr. C. H. Riggs.

Dr. J. C. Whiting Will Retire from Practice.—Doctor Whiting, of Peoria, Ill., past grand chancellor of the state organization of the Knights of Pythias and soon to retire from the practice of dentistry in Canton, will have charge in connection with R. W. Sweeney of Galesburg, of the endowment rank of the order in the state excepting Cook County. In connection with this work, Mr. Whiting, during the coming year, expects to engage in Chautauqua work.

Michigan State Board of Dental Examiners.—At the last regular meeting of the Michigan State Board of Dental Examiners in Dentistry, held at Ann Arbor, Mich., Oct. 31, to Nov 4, the following officers were elected for the ensuing year. President, Walter C. McKinney, Saginaw; treasurer, Chas. H. Oakum, Detroit; secretary, Albert L. LeGro, Three Rivers. Reciprocity with Oklahoma was ratified. Michigan now interchanges with Canadian Northwest Territories, New Jersey and Oklahoma.

Marriages.—Dr. D. M. Bass, of Portage, Wis., and Miss Harriet E. Purdy, October 15th. Dr. Emmett W. Shackelford, of Durham, N. C., and Miss Frances C. Owen, Denniston, Va., October 11th. Dr. Edwin A. Morrow and Miss Ethel Cress, of Washington, Ill. Dr. Max Ruge, of Valparaiso, Ind., and Miss Nellie Ethel Grise, of Mishawaka, Ind., October 29th. Dr. Frank Stoudt of Hastings, Minn., and Miss May Hanna, October 25th. Dr. Walter Adams, Decatur, Ill., to Miss Charlotte Clark, Indiana, Pa., November 15th.

Deaths.—Dr. Joseph C. Kirby, of Bridgeton, N. J., September 23rd of heart disease. Dr. Edw. P. Hadcock, of Newport, N. Y., October 16th age 64. Dr. Abraham S. Miller, of Lancaster, Pa., October 12th of heart trouble, age 67 years. Dr. C. W. Bard, of Slippery Rock, Pa., died

October 26th, age 55 years. Dr. Charles Searle, of California, died in St. Petersburg, October 24th, of typhoid fever. Dr. Daniel B. Ramsay, of Pittsburgh, October 9th, age 68 years. Dr. T. C. Lentz, of Columbus, O., October 8th, of throat trouble, aged 34 years. Dr. J. P. Von Lackum, Waterloo, Iowa, November 9th, from septic poisoning.

Territorial Board Meets.—The territorial board of dental examiners met the 14, and 15, of November at Oklahoma City. This will be the first meeting of the board since the new law went into effect on June 1st. Since the operation of the law four prosecutions for violations have been conducted under the direction of the board, and in each case a conviction was secured and a fine of from fifty to a hundred dollars was assessed. It is probable that several more cases will be prosecuted before the first of the year. The members of the board are Dr. F. D. Sparks, Ponca City, president; Dr. A. C. Hixon, Guthrie, secretary; and Dr. R. H. Pendleton, of Norman, treasurer.

Rock Island County Dental Society.—Officers elected as follows: President, Dr. R. M. Pearce, Rock Island; first vice-president, Dr. H. G. Trent, Rock Island; second vice-president, Dr. W. M. Everett, Atkinson; third vice-president, Dr. Owen C. Hay, Cable; secretary, Dr. W. T. Lockhart, Moline; treasurer, Dr. C. L. Silvis, Rock Island; Board of censors, Dr. A. H. McCandless, Rock Island; Dr. L. W. Skidmore, Moline; Dr. C. R. Baker, Davenport. Program committee, Dr. Mary G. Robeson, Moline; Dr. Fred Graflund, Moline; Dr. W. H. Carl, Rock Island. Membership committee, Dr. C. L. Silvis, Rock Island; Dr. G. L. David, Aledo; Dr. G. L. Wood, Geneseo; Dr. W. G. Hay, Moline.

Definition and Explanation of Temperament.—An individual peculiarity of physical organization, and characterized by its striking functionation, ascribed by Hippocrates as being due to a relative predominance or excess of the elements, either blood, phlegm, yellow bile, or black-bile; hence denominated as sanguineous, phlegmatic, bilious and meloncholic temperament. Late writers and observers, however, have seen obvious reasons to designate and adopt a nervous type and in omitting a bilious, possibly the yellow bile. The subject is divided into an arbitrary classification, having some useful importance in the art, not science of dentistry, as describing the classification, color, shape or form, and structure density of the teeth. There is no pure and distinct type of temperament to be found in any person.—Dr. W. F. A. Schultz, Prof. of Oral Surgery, Dental Department, Barnes University, St. Louis, Mo.

The Bolters and Chewers.—The learned Dr. William Osler, now of Oxford university, whose views on old age excited so much discussion not long ago, classifies mankind, in an address to dental students, into two great groups, the Bolters and Chewers of food, and says that dentists should aim to increase the number of the first and diminish the number of the second class. Doctor Osler approves the

views of Mr. Horace Fletcher, who preaches the more thorough mastication of foods as a means of health, and who is supported in this by some of the most eminent physiologists. Mr. Gladstone used to urge that every mouthful of food should be masticated from 30 to 35 times, but later students of the subject say that from 60 to 70 times are not unusual among healthy young men, and that certain kinds of food may require 150 mastications. Doctor Osler appeals to the dentists to preserve and provide the means of this more thorough mastication for the race.

New Jersey Law Upheld.—One case of great importance recently decided by the supreme court in New Jersey, was setting aside the verdict of acquittal of Dr. J. Lee Terry, Trenton, on the charge of practicing dentistry without taking out a State license. The State Board of Registration and Examination in dentistry made the charge against Doctor Terry and the State Law Department was prosecutor. In his opinion, setting aside the acquittal in the District Court, Trenton, Justice Swayze said: "The judge that charged that if the jury found that the defendant was doing so as a student of a regular dentist, the verdict should be for the defendant. I think this charge was erroneous. There was evidence that the defendant was not an assistant, but rather the principal; and that the dental operations he performed were performed independently and on his own supervision of the alleged preceptors." This is the first blow to breaking up a practice of dentists coming into New Jersey and avoiding the law.

Dentistry of Ancients.—Hippocrates, about four centuries before Christ, wrote of the care of the teeth, and a tomb of Tanagra, of about the same period has yielded a set of false teeth. Following up ancient dentistry further, Ernesto Mancini, an Italian archaeologist, finds that the art had reached a high development at an earlier time in Assyria, Egypt, Phoenicia, and among the Etruscans. Perfectly adhering gold fillings from mummy teeth of Thebes have been reported by Benzoni, though denied by other authorities. In European museums are preserved Phoenician teeth bound together with gold wire, Etruscan gold teeth and "bridge-work" 3,000 years old from Cervetri. A museum of Rome has a plate fitting over three round teeth and having a place for a false tooth. A Florence museum claims the oldest dental work in Italy—a skull with incisors bound with a gold band, and dating probably from the fifth century B. C. Dentistry declined in Europe after the early part of the Christian era. The Arabs kept up the Greek art, however, and late in the sixteenth century the protection of teeth became common in Europe. Pare, physician of Charles IX. was the first to transplant living teeth. He filled ordinary teeth with cork and lead, but used gold for royalty.

Dentist Was an Easy Mark.—"I ask how I could help it?" was all Alphonse Dueroit's defense when called on in a Paris court to explain why he had played a new trick on a poor dentist. "It was so easy; he bit like a pawnbroker." Here is what he did: The dentist.

Hugues Holer, was eating his lunch when a patient called with. acc-
to the servant, such a terrible toothache that human pity could not
resist. The dentist left his chops and put the man in a chair. He
found a hard substance in one of the teeth in the back of the jaw
which looked like a metal filling ready to come out. He touched it
lightly with his instrument and the next instant had a good sized pearl
in his hand. "Sapristi! but it's a pearl! Who's put a pearl in your
tooth?" Ducroit, for it was he, explained in a mystified way that he
had indeed been eating oysters a moment before, and had thought he
had broken a tooth by biting on a piece of shell. He at first seemed de-
lighted and discussed with the astonished dentist the probable value
of the gem. Then: "I am sorry I have no money to pay you with;
I went off in such a hurry that I did not pick up my pocketbook."

"Oh, that's all right," said the dentist, "you can—"

"Tiens! here's an idea, said Ducroit, suddenly. You keep the
pearl til I come to-morrow, and, for form's sake, you might let me
have fifty francs as pledge of fair dealing."

The dentist thought that was all right, too. He gave Ducroit the
fifty and put the pearl away. Next day, when the lucky owner did not
come back, he thought he would take a look at it. The microscope
showed it a vulgar imitation that, said the magistrate, ought not to
have taken in a baby.

"It was only the eighth time I'd played that trick!" he declared
sorrowfully. "There should have been 500 francs more on it. Brains
don't bring the reward they used to, mes enfants!"

Recent Patents of Interest to Dentists.

802099—Dentrifrice, Eustace H. Gane, New York.

800387—Dental retainer, John Mills, Brantford, Canada.

801911—Artificial teeth, Carl Rauhe, Dusseldorf, Germany.

801840—Mouth prop, Joseph B. Besant, Saranac Lake, N. Y.

801841—Mouth Prop, Joseph B. Besant, Saranac Lake, N. Y.

801056—Dental matrix, Fredrik E. Anderson, Red Wing, Minn.

801215—Dental engine attachment, Franklin O. Cates, St. Louis.
Mo.

800498—Dental waste cotton receiver, Lyman L. Sheffield, Toledo,
Ohio.

800401—Tooth-powder bottle, Mark T. Rounds, South Portland,
Maine.

800787—Holder for tooth picks, Eduard Bergmann, Vienna,
Austria-Hungary.

800193—Making shell gold crowns for teeth, Samuel E. Wil-
helm, Sac City, Iowa.

800981—Air-blast attachment for dental engines, James W. Buchan-
an, Savannah, Georgia.

Copies of the above patents may be obtained for ten cents each
by addressing John A. Saul, Solicitor of Patents, Fendall building
Washington, D. C.

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We wish our readers, one and all, a Merry Christmas and Prosperous New Year.

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